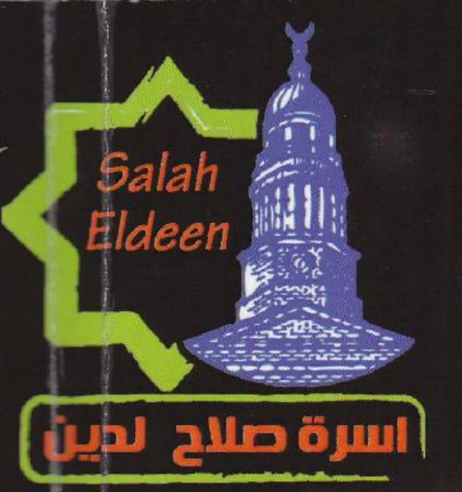
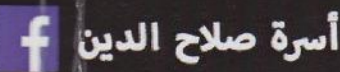


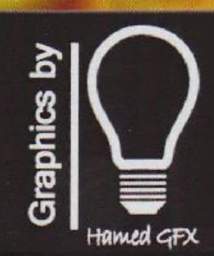
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- Physiology
- Anatomy
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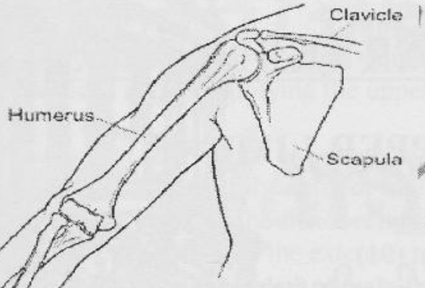
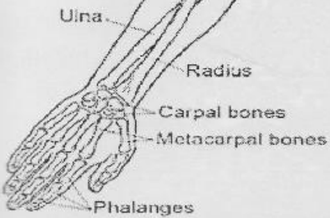
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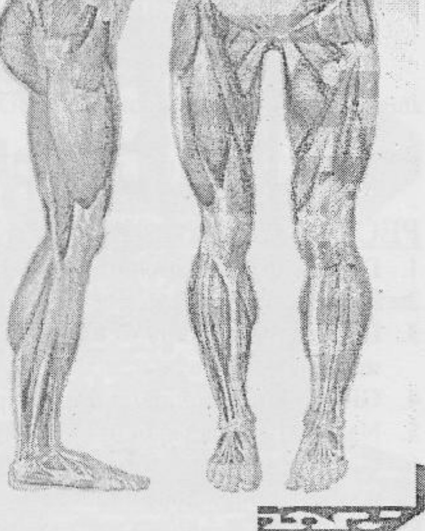
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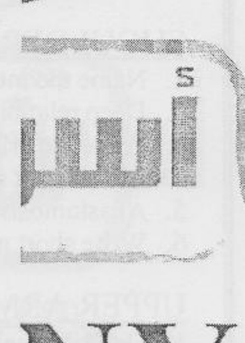
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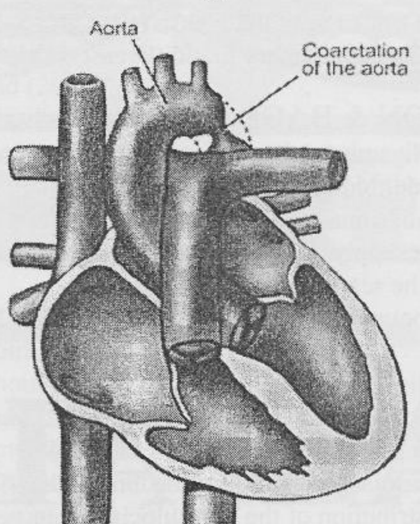
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ANATOMY







KA NY
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READ CAREFULLY BEFORE ANSWERING (EDITORS' NOTE)

IN OUR BOOK, we present the subjects in a student-friendly way (as much as there could be), so you can fin most appropriate way to get prepared for your exams. ***Accordingly***, you will find that:

- Anatomy is divided regionally into upper limb, lower limb, thorax, embryology and bases (biolog
- Each of the limbs and thorax is sub-divided into sub-regions
- Questions are arranged in: Muscles, Nerves, Arteries then others. So you can either study all mus nerves or arteries together, or study the region as a whole. ***Joints*** questions are arranged joint-wis

Enjoy...

MID YEAR QUES

UPPER LIMB

PECTORAL REAGION & AXILLA

1. Discuss the formation of brachial plexus. (91)
2. Branches of the posterior cord of brachial plexus; their names and root value. (2001)
3. Discuss the anatomy of the axillary artery and mention anastomoses it shares and give its surf marking. (93)
4. Give a short account on the clavipectoral fascia. (2000)
5. Name 3 boundaries of apex of axilla. (98)
6. Give the structures forming the medial and lateral wall of axilla. (99)
7. Axillary lymph nodes. (2002)
8. Discuss the lymphatic drainage of the breast. (91)
9. Lymphatic drainage of the mammary gland (Breast).(2013)

SHOULDER REGION & BACK

1. Name the muscles & ligaments attached to the upper end of humerus. (95)
2. Deep relations of the deltoid muscle. (93 & 2001)
3. Write the origin of Latissimus dorsi muscle. (99)
4. Attachment and nerve supply of two muscles involved in abduction of the shoulder.(2003)
5. Anastomosis around the scapula. (2001)
6. Write short notes on boundaries of auscultation triangle. (2001)

UPPER ARM

1. Describe the upper end of the radius. Name the related joints and structures attached. (2000)
2. Compare between biceps & triceps muscles. (banisuif99)
3. Give 5 structures at the insertion of the coracobrachialis. (91)
4. Origin, course and distribution of the musculocutaneous nerve. (2003) course, relations and branches (2000)
5. Describe surface anatomy of radial nerve of the arm.

6. Branches of brachial artery.(2003)
7. Name 3 arteries sharing the anastomosis around the surgical neck of humerus. (98)
8. Arterial anastomosis around the elbow. (2002)

FOREARM

1. Write a short note on the attachment, nerve supply & important relations of muscles that produce pronation of the forearm.
2. Attachment & nerve supply of the two pronator muscles of the forearm(2002)
3. Origin, insertion, nerve supply and action of the flexor digitorum superficialis muscle. (2001)
4. Discuss in brief each of the following: (92)
   a. long muscles of the thumb
   b. anatomical snuff box
5. Describe in short the branches of ulnar nerve in forearm. (banisuif99)
6. Enumerate cutaneous nerves supplying the upper arm. Give their root value and parent trunks. (94)
7. Discuss the attachment & relations of retinaculae around the wrist. (94)
8. Give the course and branches of the anterior interosseous artery. (2000)
9. Superficial and deep relation of the flexor retinaculum of the wrist. (2001,2003)
10. Attachments and deep relations of the extensor retinaculum of the wrist. (2002)
11. Describe the attachments of the flexor retinaculum at the wrist joint. Mention the structures passing deep to it.(2012)
12. Name five structures connecting radius and ulna together.(2003)

HAND

1. Describe the anatomy of palmer cutaneous branches of median & ulnar nerves. (93)
2. Course and distribution of the deep branch of the ulnar nerve in the hand. (2001)
3. Describe, in short, the branches of median nerve in the hand. (99)
4. Discuss in short the motor and cutaneous supply of the hand. (92)
5. Sensory innervation of the hand (2002)
6. Give the surface anatomy of the deep palmer arch. (98)
7. Write a short note on the skin creases in front of the wrist, palms and fingers. (93)
8. Discuss the boundaries and contents of the mid palmer space of the hand. (98)
9. Describe the anatomy of the flexor synovial sheath in the hand and fingers. (93)
10. Boundaries and contents of the anatomical snuff-box.(2003)

Joints

1. Ligaments of the shoulder joint; their names. (2001)
2. Name the movements or the shoulder girdle & the muscles producing them. (2002)
3. Describe the mechanism of abduction of the shoulder.(2012)
4. Name the muscles producing medial rotation of the shoulder joint. (banisuif99)
5. Anatomical description of the pronated and supinated forearm .muscles responsible and the joints involved and the type of these joints .(2013)
6. Give account on radio-ulnar articulations. (92)

THORAX

NERVES & VESSELS

1. Give the relations of typical intercostal nerve at the anterior part of the intercostal space. (99
2. Name 5 branches for the posterior intercostals artery. (99)
3. Origin, termination & branches of internal thoracic artery. (2002)
4. Branches of the typical intercostals nerve.(2003)
5. Enumerate the tributaries of the left brachiocephalic (innominate) vein.(2012)
6. Give an account on the course and tributaries of the azygos vein.(2012)

THORACIC CAVITY (HEART & LUNG) MEDIASTINUM

1. Give the surface anatomy of the anterior border of the pleura. (banu99)
2. Describe the cervical pleura. (99)
3. Give the boundaries of the oblique sinus of the pericardium. (99)
4. Give boundaries of the transverse sinus of the heart. (98)
5. Describe the diaphragmatic surface of the heart. (99)
6. Describe in short the cavity of the right atrium. (98)
7. Mention the surface anatomy of the orifices of the heart & the A.V sulcus. (98)
8. Lines of reflection of the left pleura.(2003)
9. Give an account on the sinus of the pericardium.(2012)

لوكان بيننا

تخيل لو أن النبي صلى الله عليه وسلم سيقابلك بعد خمس دقائق كيف سيكون مظهرك وملبسك ومحتويات محمولك إن طلب منك رؤيته لا شك بأنك ستصلح من كل حالك لتستعد للقاء حبيبك رسول الله وستستحي منه فهل يعقل ان تستحي من بشر ولا تستحي من رب البشر الذي يراك الآن.

HUMAN BOILOGY

BONE, CARTILAGE, JOINTS & MUSCLES

1. Discuss the growth of bones. (94)
2. What are the growing end of the following bones:

a- Humerus b-radius c-femur d-tibia

3. Describe sesamoid bones. (99) Give examples. (2002)
4. Describe the nutrient artery of long bone. (98)
5. Arterial supply of long bones. (2001)
6. Blood supply of the long bones.(2005)
7. Describe the epiphyseal plate of cartilage. Give its applied anatomy. (2000)
8. Describe the articular cartilage of synovial joints. (2000)
9. Hyaline cartilage, give examples of its sites. (2002)
10. Describe the synovial membrane of the synovial joint. (bani99)

11. Characteristics of the synovial joints. (2002)
12. Secondary cartilaginous joints. (2001)
13. Cartilaginous joints.(2003)
14. General factors stabilizing joints. (2001)
15. Give a short account on the nerve supply of skeletal muscles. (94)
16. Functions of the superficial fascia .(5 marks) (2011)
17. Give an account of the characters of synovial joints .(5 marks) (2010)

الحب .. طريق الجنة

"إن الله تعالى يقول يوم القيامة: أين المتحابين بجلالي ، اليوم أظلهم في ظلي يوم لا ظل إلا ظلي"

قصة المال الضائع

يروى أن رجلًا جاء إلى الإمام أبي حنيفة ذات ليلة، وقال له يا إمام؛ منذ مدة طويلة دفنت مالًا في مكان ما، ولكنني نسيت هذا المكان، فهل تساعدني في حل هذه المشكلة؟

فقال له الإمام: ليس هذا من عمل الفقيه؛ ثم فكر للحظة وقال له: اذهب فصل حتى يطلع الصبح، فإنك ستتذكر مكان المال إن شاء الله.

فذهب الرجل وأخذ يصلي وفجأة اثناء الصلاة تذكر مكان المال، فأسرع إليه و أحضره، و في الصباح أخبر الإمام أنه عثر على المال، وسأله كيف عرفت اني سأتذكر مكان المال؟

فقال الامام: لأني علمت أن الشيطان لن يتركك تصلي وسيشغلك بتذكر المال عن صلاتك.

FINAL YEAR QUESTIONS

UPPER LIMB

PECTORAL REGION & AXILLA

1. A. Give an account of the attachment, nerve supply and relations of pectoralis minor muscle. (5 marks) 2011
2. Name the branches of the axillary nerve. (98)
3. Course, branches (98) and injury of circumflex nerve.(2003)
4. Give an account on position and formation & branches of brachial plexus. (97, 2014)
5. Give an account of the anatomy of the axillary artery.(91/2007)
6. Discuss the surface anatomy of axillary artery. (93)
7. Give an account of relations and branches of third part of axillary artery. (2001)
8. Name the muscles and ligaments attached to the upper end of the humerus. (95)
9. Name four muscles attached to the upper end of humerus. (97)

10.Give an account on anatomy of the clavipectoral fascia. (2001)
11.Give an account on lymph drainage of the breast (plexus nodes parenchyma). (92)
12.Discuss in short groups of axillary lymph nodes. (90)
13.Describe in short the boundaries & contents of the Axilla (2010)

SHOULDER REGION & BACK

1. Name the four muscles forming "the rotator cuff muscles". Give their attachment and mention their importance.(MAY2014)
2. Attachments and nerve supply of two muscles forming the rotator cuff of the shoulde joint.(2004)
3. Write origin, insertion, nerve supply & action of serratus anterior. (90,sep2009)
4. Attachments, nerve supply and actions of Latissimus dorsi muscle. (June 2009)
5. Give the origin, insertion, nerve supply, action & relations of deltoid muscle. (99,200
6. Write short account on attachment, action & nerve supply of muscles attaching hume the axial skeleton. (91)
7. Name the artery and nerve passing deep to rhomboids & levator scapulae. (98)
8. Boundaries and contents of quadrangular space of the shoulder region. (2002)
9. Name the 3 structure in the delto- pectoral groove. (98)

UPPER ARM & ANASTOMOSIS AT ELBOW

1. Anatomical structures (events) at level of insertion of coracobrachialis muscle.(2006)
2. Compare & contrast between biceps & triceps muscles in details. (92)
3. Attachment and action of biceps brachii muscles .(2011)
4. Give course (2009), relations and branches (2009) of radial nerve in axilla and arm. (95/98/2000)



5. Give the relations of brachial artery and its branches. (90/+course in96)
6. Origin, course and branches of the profunda brachii artery.(2004)
7. Name four branches of brachial artery. (97)
8. Describe the arterial anastomosis around the elbow. Give its clinical importance. (MAY2014).

9. Enumerate Arteries anastomosing at the elbow. (2008)Give a brief account on intermuscular septa of the arm. (94)

CUBITAL FOSSA, FOREARM & ANASTOMOSIS AT WRIST

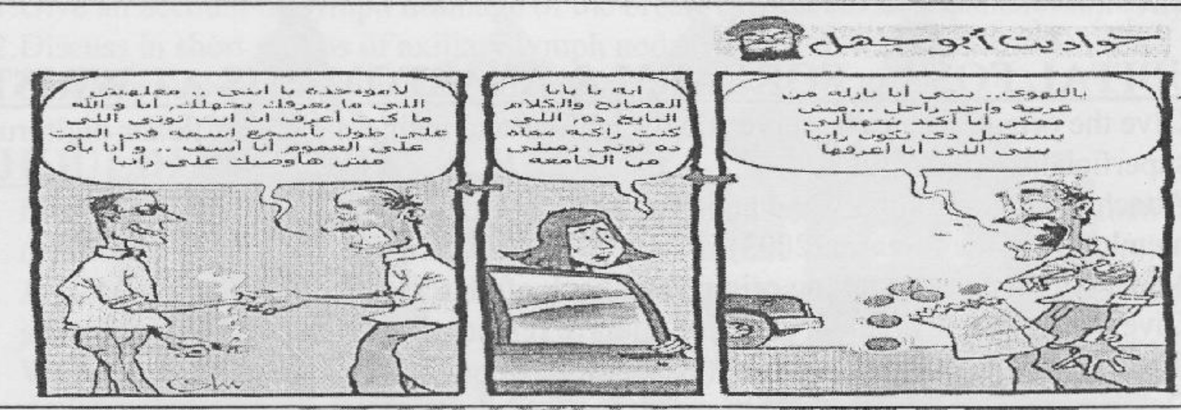
1. Give the origin, insertion, nerve supply, actions and main relations of flexor digitorum superficialis muscle. (98)
2. Attachment, nerve supply and action of two muscles arising from the interosseous membrane of the forearm.(2003)
3. Name 3 long muscles taking origin from back of ulna.
4. Give the course, formation, effect of injury& relations of radial nerve in the arm & forearm. Enumerate its branches. (90, sep2009).
5. Describe in short the course of the ulnar nerve in the forearm. (96)
6. A. Course, branches of median nerve in the forearm. (5 marks)(2009)
7. Posterior interosseous nerve and its injury. (2002)
8. Name 3 muscles supplied by posterior interosseous nerve. (98)
9. Enumerate arteries which anastomose at the Wrist joint. (sep2009)
10. Give account on course & relations and branches of radial artery in forearm and hand. (98,2003)
11. Name 4 branches arising from the ulnar artery in forearm .(98)
12. Give account on course and relations of ulnar artery. (99)
13. Give account on course, relations and branches of the anterior and posterior interosseous arteries of the forearm. (97/99)
14. Name 5 structures (not muscles) connecting radius to ulna. (96)
15. Give the attachments of flexor retinaculum & its relations. (90)
16. Discuss extensor retinaculum of the wrist. (97) attachments & relations (96)
17. Give the anatomy of cubital fossa. (93,2011)
    Boundaries and contents (97, 2014)/ give the relations of the contents to each other (2014)

HAND

1. Discuss attachments & actions of interosseous muscles in the hand. (95)
2. Summarize the sensory and motor nerve supply of the hand (2010)
3. Discuss the anatomical basis of Claw hand deformities. (93)
4. Discuss the nerve supply of the hand. (91)
5. Give an account on the course, relations, and branches of the median nerve in the forearm and the hand (2004/2008)
6. Name muscles innervated by the deep terminal branch of the ulnar nerve.(2005)
7. Formation, surface marking, relations and branches of superficial palmer arch. (2002)
8. Describe the fascial spaces of the palm. (2000)
9. Courses, branches & effect of injury of radial nerve







JOINTS

1. Describe the movements on the shoulder & muscles producing each movement. (98)
2. Relations of the elbow joint.(2005)
3. Describe ulnar collateral ligament of elbow. Mention structures that come in contact w it.
4. Give account on radio-ulnar joints & movements taking place at these joints. (99)
5. Give an account of anatomy of radioulnar articulations. (2001)
6. pronation and supination
7. Describe movement of opposition of the thumb. (97)
8. Movements of the thumb and the muscles producing them.(2006)
9. Give an account of anatomy of joints of fingers. Write a note on the action of muscles working on fingers. (93)

Course, relations and tributaries of the superficial veins of the up limb. (2005)

قال صلى الله عليه وسلم: "لايمنعن أحدكم مخافة الناس أن يقول بحق إذا رآه أو سمعه فإنه لايقرب من أجل ولا يباعد من رزق"

THORAX

THORACIC CAVITY & MEDIASTINUM

1. Name the 3 structures which pass in front of the neck of the first rib. (2000)
2. Describe the anatomy of the thoracic inlet. (93) Write a note on each structure passing throughout. (93/2006)
3. Course , branches of the anterior intercostals nerve .(2010)
4. Contents of the posterior mediastinum.(2004)
5. Give boundaries and contents of superior mediastinum. (97/98/2007/)

6. Discuss the anatomy of superior mediastinum. Give the arrangement of its structures and their inter-relations. (92)
7. Describe the boundaries and enumerate the contents of the inferior mediastinum. (5 marks) (2011)

قال الإمام الشافعي "طلبنا ترك الذنوب فوجدنها في صلاة الضحى،وطلبنا ضياء القبور فوجدنها في قراءة القرآن،

وطلبنا عبور الصراط فوجدنها في الصوم والصدقة ، وطلبنا ظل العرش فوجدناه في أخوة الصالحين"

LUNG & Pleura

1. Give the surface anatomy of fissures of lung. (95)
2. Write short notes on apex of lung & relations, root of lung & its relations. (91)
3. Bronchopulmonary segments and their clinical significance.(2005/2014)
4. Give an account of the relations of the mediastinal surface of the lung of both sides. (99)
5. Relations of mediastinal surface of right lung including its hilum. (2001)
6. Name 4 impressions of the mediastinal surface of the left lung. (97)
7. Surface anatomy of the right lung (sep2009).
8. Write an account on the pleura & its recesses. Describe the surface anatomy of the anterior border of the left lung. (96)
9. Surface Anatomy of right and left pleurae .(2010/2011)
10. Surface anatomy of Lt. pleura and lung .(2013)

HEART & Pericardium

1. Name the 2 chambers forming the inferior border of the heart. (98)
2. Give an account of the right ventricle. (95)
3. Give an account on right atrium. (97)
4. Compare between the right and left ventricles.(MAY2014)
5. Surface anatomy Of the heart.(June 2009)
6. Compare and contrast between different cardiac orifices. Give surface anatomy of each valve. (91)
7. Surface anatomy of the cardiac valves(2004/2008/2011/2014) /and auscultatory areas (where they are best heard).(2004) / Are the heart sounds heard at these sites? Why? (2014)
8. Give an account of the anatomy of anterior and posterior atrioventricular grooves. (5 marks) (2011)
9. Give course and branches of both coronary arteries. (97)
10. Arterial supply of the heart(2007)
11. Discuss the venous drainage of the heart. (93/2001/2010)
12. Name 4 tributaries to coronary sinus. (98)
13. Give an account of the sinuses of pericardium. (98/2008)
14. Give an account of Sinuses of the serous pericardium.(2003/2006/2013)
15. Discuss the anatomical basis of tapping of the pericardial sac. (93)

VESSELS

1. Name 3 branches from internal thoracic artery. (98)
2. Origin, termination (Course) and branches of internal thoracic artery. (2008/2009).
3. Describe the course & relations and branches of arch of aorta. (96/99,2003)
4. Course, relations and branches of descending thoracic aorta. (2002,2005,2008)
5. Name 4 branches arising from the front of the thoracic part of descending aorta. (99)
6. Write an account on pulmonary trunk & its branches. (93)
7. Tributaries of the brachiocephalic veins.(2005)
8. Give the anatomy of azygos vein. (99/2000)
9. Origin, course and end of azygos vein.(June 2009)
10. Origin , course , tributaries of Azygos Vein .(2008)
11. Azygos and hemi azygos venous systems .(2013)
12. Compare between superior and inferior hemi azygos vein.(2014)

TUBES & NERVES OF THORAX

1. Describe the course and relations of the thoracic part of trachea. (2000)
2. Give account of right and left main bronchi. (99)
3. Anatomical differences between right and left main bronchi. (2002)
4. Name 3 groups of lymph nodes related to trachea and main bronchi. (2000)
5. Describe course and relations of esophagus in the chest. (95/97/98)
6. Name the nerves related to esophagus and give their sites. (99)
7. Course (2004), Relations and branches (2004) of the thoracic part of the left vagus ne (sep2009)
8. Relation , Branches of left vagus in the thorax .(Sept.2009)
9. Course, relations, (2009) & distributions of thoracic part of right phrenic nerve. (2002
10. Follow the course of phrenic nerve on both sides. (96)
11. The autonomic nervous plexus in the thorax. (92)
12. Give the course, relations and branches (2003) of sympathetic trunk in the chest. (98)
13. Origin, Course, termination and tributaries of the thoracic duct. (2001,2006)

ماذا تركت من أجل الله

يقول رسول الله صلى الله عليه وسلم :(من ترك شيئا لله عوضه الله خيرا منه)........فماذا تركت أنت؟!!النظرة الحرام أم الغش أم التدخين أم الغيبة أم............

KASR ALAINY

CAIRO UNIVERSITY - FACULTY OF MEDICIN

نبض يتجدد

LOWER LIMB

FRONT & MEDIAL SIDE OF THE THIGH:

1. Name the muscles attached to lateral supra condylar ridge. (99)
2. Give the origin, insertion, nerve supply and action of quadriceps femoris. (98)
3. Attachment , nerve supply , Action of adductor magnus muscle.(2009)
4. Attachment ,action m nerve supply of Sartorius muscle . (2008)
5. Describe the formation, course (2004), relations and branches (2004) of femoral nerve. (92/+effect of injury 99)
6. *Femoral Artery*
   Describe the origin (94.Sept.2009.2010.2011.2014), course (2010.94.2014), end (94.2010.2011.2014), relations and give different branches (94.Sept.2009.2010.2011.2014)
   Write note on its surface anatomy (Sept.2009/94). Mention its clinical importance (2010)
7. Enumerate branches of profunda femoris artery .(2008)
8. Course, relations and branches of profunda femoris artery. (2001)
9. Write short notes on saphenous openings. (93)
10. Discuss the boundaries & contents of the femoral triangle. (98.2007.2008)
11. Discuss the Formation and content of the femoral sheath. (2003) /& clinical importance. (2013)
12. Name the epiphyseal arteries which supply the head of femur and give the origin of each. (97)
13. Describe the position, boundaries and contents of the subsartorial canal. (96)
14. Describe the anatomy of adductor canal including surface anatomy. (99)
15. Name the 4 muscles forming the wall of adductor canal. (98)

GLUTEAL REGION

1. Give the attachment, nerve supply of gluteus maximum muscle. Name the structures deep to it. (2000,2001)
2. Name the lateral rotators of the hip joint & give their nerve supply. (95)
3. Name the tendon of muscle gets in contact with the back of the neck of the femur & mention its action. (98)
4. Give the attachment of gluteus medius and minims muscle. Mention their nerve supply and the resulting gait in their unilateral and bilateral paralysis. (MAY2014)
5. Name the branches of the lumbar plexus and their root values.(2005)
6. Name 3 nerves in direct contact with hip bone.
7. Course and branches of obturator nerve. (2002)
8. Name the 3 muscles supplied by the superior gluteal nerve. (2000)
9. Give account on arteries of gluteal region. (97)

BACK OF THIGH AND POPLITEAL FOSSA

1. Give origin, insertion(97,2006,2014) & action of the 3 hamstring muscles (biceps f semitendinosis and semimembranosis) (97)/ & nerve supply (2006/2014)
2. Attachments, nerve supply and actions of popliteus muscle. (Sep 2009)
3. Give account on *Sciatic Nerve*;
   Course (97/2011), Relations (97), Branches (93/97/2011), Surface anatomy(93,97), Branches (2011) & Effect of injury (2011/2012).
4. Give course, relations and branches of tibial nerve (medial popliteal) in the popliteal (98)
5. Write short notes on posterior femoral cutaneous nerves. (93)
6. Give an account of cutaneous nerves of the thigh including gluteal region. (99)
7. Deep relations and branches of popliteal artery. (2002)
8. Enumerate boundaries & contents of popliteal fossa.(2008/2014)
9. Describe the arrangement of the main contents of the popliteal fossa. (96/2014)

THE LEG

1. Give origin of soleus muscle.
2. Describe the anatomy of Gastrocnemius and soleus muscles.(2003)
3. Give the attachment, nerve supply and action (98) of peroneal muscles. (2004)
4. Attachments, nerve supply and action of the tibialis anterior and posterior muscles.(2
5. Give full account on flexor of toes including the hallux. (94)
6. Origin, course, branches and injury of the common peroneal nerve. (2001,June 2009)
7. Give the course, relations and branches of the deep peroneal nerve. (2000)
8. Give course, relations & branches of the tibial nerve in the leg. Add notes on effect o injury. (96)
9. Describe the anatomy of anterior tibial artery. Mention anastomosis in which it shares
10. Give course, relations and branches of anterior tibial artery. (97)

احذر سهام الشيطان

يقول صلى الله عليه وسلم: (النظرة الحرام سهم مسموم من سهام ابليس من تركها مخافتي أبدلته إيمانا يجد حلاوته في قلبه) وقيل (القلب بيت والعين بابه. والشيطان لص. واللص لايدخل البيت الا والباب مفتوح)

كن يوسف عصرك

فيوسف قدوتك عندما راودته امرأة العزيز كان شابا أعزبا في بلاد الغربة والمرأة ذات منصب وجمال غير أبية ولا ممتنعة وهي التي تطلب وهو في دارها وتحت سلطانها وقهرها ومملوكا عندها وتوعدته بالسجن فنادى بأعلى صوته(معاذ الله إنه ربي أحسن مثواي إنه لا يفلح الظالمون) أما آن لك أن تقولها عند نظرك النظرة الحرام.

نبض يتجدد

11. Name 6 branches of posterior tibial artery.
12. Attachment and deep relations of the retinaculae around the ankle. (99/2002)
13. Name 3 tendons deep to the flexor retinaculum of the ankle. (2000)

THE FOOT

1. Give short account on flexor digitorum accessorieus muscle. (91)
2. Name the muscles attaches to the base of the 5th metatarsal bone. Give their nerve supply. (99)
3. Mention the cutaneous nerves of the leg and foot. (2012) / give the origin and distribution of each. (2010)
4. Name 6 long tendons supporting the arches of the foot.
5. Medial longitudinal arch of the foot and factors maintaining it.(2005)
6. Longitudinal arches of the foot(June 2009)
7. Arches of the foot , bony components, functions and factors maintaining.(2013)
8. Give short account on Transmission of body weight. (2007)

JOINTS & ARTERIAL ANASTOMOSIS

1. Describe the fibrous capsule and ligaments of the hip joint. (95)
2. Give a detailed account on factors that stabilize the hip joint. (93)
3. Discuss the anatomy of the hip joint. Give analysis of movements occurring around the joint. (91)
4. Ligaments (2004) and relations of the hip joints. (sep 2009)
5. Enumerate the 4 ligaments of the knee joint. (97)
6. Cruciate ligaments of knee joint.(2006/2008/2010/2011) & mention their importance. (2014)
7. Give detailed analysis of movement occurring in knee joint. (92)
8. Give short account on Arterial anastomosis around the knee(2003)
9. Mention the movements allowed at the ankle joint and the muscles responsible for these movements.(2012)
10. Give brief account on ligaments of ankle joint. (94) Give type and movements of the joint (2011)
11. Give short account on deltoid ligament of the ankle. (91)
12. Give short account on the anastomosis around the ankle. (91)
13. Describe the movements of the ankle joint and name the muscles allowing them. Give the type of this joint. Is it the same as that of the knee joint? Why? (MAY2014)
14. Write short account on muscles that keep balance of the body. (92).

SUPERFICIAL VEINS

1. Describe in short the venous drainage of the lower limb. (95)
2. Name 3 sites where you can identify great saphenous vein. (98/+sites97/99)
3. Course and tributaries of (2012) Great saphenous vein.(2006)
4. Discuss the anatomical basis of varicose veins of the leg. (93)

Give a short account on the mechanism of walking. (2012)

اضحك مع النبي

ول الله صلي الله عليه و سلم يجلس مع علي بن أبي طالب فكانوا يأكلون التمر فكان علي يأكل التمر و يضع النوى أمام رسول الله
لله عليه و سلم فقال للرسول(ص) أكلْ هذا التمر أكلته يا رسول الله ؟ فضحك الرسول و قال و أنت أكلت التمر بنواهيا علي؟!

HUMAN BIOLOGY

Give an account on CHANGES WHICH OCCUR DUE TO AGING OF BO

BONE& CARTILAGE & JOINT

1. Write a short note on periosteium of bone and its functions. (91)
2. Give growth anatomy of long bone. (97)
3. Give note on blood supply of long bone. (95/99)
4. Give an account on cartilaginous joints (99)
5. Give an account of articulate cartilage, fibrous capsule and synovial membrane of sy joint. (98)
   Characters of synovial joints .(2010)
6. Write short note on synovial membrane & synovial fluid. (92)
7. Synovial sheath(2001)
8. Stability of joints.(sep 2009) & Compare the stability of hip and shoulder joints (201
9. Classify joints according to Axes of Movement , give examples.(2008).

MUSCLES

1. Give an account on nerve supply and arterial supply of skeletal muscles. (99)
2. Write short note on muscle action and power. (2004)
3. Action of skeletal muscles. (2002/2004)
4. attachments of the skeletal muscles.(2005,2008)
5. Give account on tendons. (97/2000/2002)
6. Patterns of the muscle form (shape), giving examples. (98,2001, 2008,2009)
7. Give short account on Pennate striated muscles.(2003/2006)
8. Give an account on pronation and supination(2007)

SKIN & FASCIA

1. Write short note on pigmentation of skin. (92)
2. Give account on innervation of skin. (93)

نبض يتجدد

33. Give characteristics and functions of deep fascia. (96)
34. Name five derivatives of the deep fascia, giving examples. (2001)
35. Changes which occur due to aging in the body(2007)
36. Functions of the superficial fascia (2011)

LYMPHATIC &VASCULAR SYSTEM

1. Give an account of lymph vessels including the circulation of lymph. (98)
2. Give a short account on connection between arteries & veins (2007/2008)
3. Give an account of end arteries (2005)
4. Arterio- venous shunt(anastomosis). (2003/2005/2006/2007/2008) & their significance(2006/2008)
5. Give account on lymphatic vessels (96/97/99/2000). & factors affecting the flow of lymph. (96)
6. Movement (flow) of the lymph. (2004)

NERVOUS SYSTEM

1. Give a note on the anatomy of the spinal nerve. (97/95/98)
2. Typical spinal nerve. (2001/2002)

ماذا أعددت للقاء ربك؟ أم نسيت؟

(يا أيها الذين ءامنوا اتقوا الله ولتنظر نفس ما قدمت لغد واتقوا الله إن الله خبير بما تعملون . ولا تكونوا كالذين نسو الله فأنساهم أنفسهم أولئك هم الفاسقون)

EMBRYOLOGY

GAMETOGENESIS & CYCLIC CHANGES IN THE FEMALES

1. Account on: the morphogenetic changes which affect the spermatid to become a mobile sperm. (92)
2. Account on different phases of menstrual cycle & hormones controlling them. (92,2006)
3. Secretory phase of the endometrial (menstrual) cycle.(2004)
4. Describe the process of Oogenesis. (98/99)
5. Give an account on formation & functions &fate of corpus luteum. (93,2005)
6. Structure, function and fate of mature Graafian follicle. (2002)
7. Ovulation: definition, time incidence and mechanism.(2005)



من كان حالفاً فليحلف بالله، وإلا فليصمت

FIRST THREE WEEKS OF DEVELOPMENT

1. Write a short account on results of fertilization. (91)
2. Describe blastocyst & its implantation. (96)
3. Give short account of Normal , abnormal sites of implantation. (2008)
4. ***Implantation*** (2007)
   definition(2001,2004), incidence(2001), mechanism(2001,2004) and normal and abn sites(2001,2004,2006,2008).
5. Formation & derivatives of notochord (2001/2003) & Functions. (2003)
6. Write short note on Notochord (June 2009).
7. Paraxial mesoderm (2008) and somites. (2001)
8. Development of (95/2000) Intra-embryonic mesoderm(97/98)

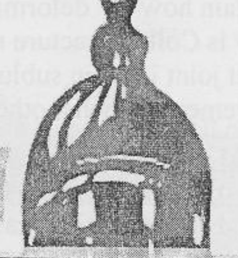
EMBRYONIC PERIOD (4th-8th weeks) & FETAL PERIOD (3rd month till d

1. Write short notes on folding of embryo & its results. (2002,Sept.2009). (94,97,99,200
2. Define the neural crest and enumerate its derivatives.(sep2009)

DECIDUA, FETAL MEMBRANES, UMBILICAL CORD & Y SAC

1. ***Placenta***
   Describe the internal structure (components) of placenta. (97,2013)
   Development. (98,2011) congenital anomalies. (2011,2009,95,97,98)
   Its normal and abnormal sites (2013)
2. Give short account of Chorion (99) & Chorionic Villi. (2008)
3. Give account on formation of amnion & its functions. (94/96)
4. Sources(2004) & Functions(2001,2004,2014(in early pregnancy)) of amniotic fluid
5. Amniotic fluid.(2007)
6. Development (2000,2002,2006,2010), structure (2002,2006) and congenital anomalie umbilical cord. (2002,2006,2010)

7. Enumerate the abnormalities of the umbilical cord. (MAY2014)
8. Umbilical cord. (97/98/99/2000)
9. Secondary yolk sac.(2003)
10. Types of (2005) Chorionic villi.(2003,2008)



TWINS & BIRTH DEFECTS

1. Monozygotic twins.(2005)
2. Teratogens. (2012)

لاتحزن.......

لان الحزن يقبض له القلب ، ويعبس له الوجه وتنطفئ منه الروح، ويتلاشى معه الأمل.*

*لان الحزن يسر العدو ويغيظ الصديق ويشمت بك الحاسد ويُغير عليك الحقائق.

*لاتحزن من نقد اهل الباطل والحساد فانك ماجور من نقدهم وحسدهم على صبرك ثم ان نقدهم يساوي قيمتك.

لاتحزن على مافاتك فان لديك نعما كثيرة. فكر في نعم الله الجليلة في أياديه الجزيلة.*

لاتحزن لان هناك من يحبك.......ويسعى لمساعدتك

"أسرة صلاح الدين"

Rest of FINAL YEAR EXAMS

JUNE 2005

Section B

Problem solving questions (each five marks)

Problem (1)

A 56-years old woman slipped in the bathroom and fracture of her left forearm occurred. On radiological examination, fracture of the distal part of the left radius easily noticed (Colles fracture). The radial fracture was reduced and the woman's wrist was immobilized in a cast below elbow for 4 weeks. The fracture was well healed (united) in 6 weeks.

A. What wrist deformity is present in a typical Colles' fracture?
B. Explain how the deformity had happened.
C. Why is Colles' fracture more common in older persons?
D. What joint is often subluxated in malunion of the radial fragments?
E. Movements of what other joint may be affected?

PROBLEM (2)

A ten-year-old girl was taken to the doctor wrapped in a blanket, shivering, and with a feve 41 degrees. Her respiration was very rapid and accompanied by severe pain in the right side her chest. On radiograph there was a picture of pneumonia with right pleural effusion.

A. What is the function of pleura?
B. What is the difference between pleurisy and pleural effusion?
C. How is fluid removed from the pleural sac?
D. Why was there pain around the umbilicus?
E. Is there any possibility of pain to be felt at top of right shoulder?

PROBLEM (3)

A 25-year-old woman was in front seat passenger in a car that was involved in a face to fac accident. Although she had head and face injuries, yet the chief complaint was inability to stand up. The physical examination revealed posterior dislocation of the right hip with fract of the posterior margin of the acetabulum.

A. How this injury has probably occurred?
B. What nerve might have been injured?
C. Mention the root value of this nerve.
D. When this nerve is completely injured, what is the group of muscles to be paralyzed?
E. Where might cutaneous sensations be lost?



وما تنساش كمان يا بوعلى إن المصحف يكون خشب، علشان لو إتزنقت فى خناقة تستعمله
القرآن لنا قرىء فيه وليس حجاباً ولا تعويذة

نبض يتجدد

JUNE 2006

SECTION B

Problem Solving Questions (five marks each)

Problem (1)

A 25-year-old man was riding his bicycle when he lost this balance and fell on out stretched hand. He felt cracking noise and severe pain in his shoulder region. A deformity of his clavicle was detected indicating fracture of the clavicle. The lateral part of his shoulder fell down and the medial fragments were elevated.

A. Where is the clavicle commonly fractured?
B. Are clavicular fractures more common in adults than children?
C. Why did his shoulder fall?
D. Why did not the acromioclavicular joint dislocate?
E. If this is seventy years old, which bone in the upper limb, is more common to be fractured?

PROBLEM (2)

A young man was stabbed in his chest at the third left intercostal space just lateral to the sternum. He was taken to hospital gasping for breath and the veins of his neck and face were engorged!

A. What vital structures might have been injured?
B. what probably caused the engorgement of his cervical and facial veins?
C. What is the surface anatomy of the right border of the heart?
D. What possible lobe of left lung was injured? And why?
E. What emergency clinical procedure would be performed before taking him to the operating room?

PROBLEM (3)

During a football match, a player was kicked on the lateral surface of the knee. He felt pain but he could walk with difficulty and pain. On radiograph, there was fracture of the head of the fibula.

A. Where would you palpate the head of the fibula?
B. What bony landmark would you use to locate it properly?
C. Which part of the upper end of the fibula is related to an important nerve? What is this nerve?
D. What is the effect of injury of this nerve?
E. Explain why could the patient walk but with difficulty and pain?





May 2010

Fill in the blanks

1. Among the branches of the lateral cord of the brachial plexus are… and …
2. The shoulder joint is a synovial joint of … variety , the glenoid cavity of the scapula is rather deepened by a rim of fibrocartilage called …
3. The blood supply of the femur comes from … and …
4. Adductor magnus is supplied by … and … nerve.
5. The anterior wall of the femoral sheath is formed by … while its posterior wall is formed by …
6. The superficial three fourths of the gluteus maximus inserted into the … while the deep fourth is inserted into …
7. The right principal bronchus is differed from the left one in having… and…
8. The pericardium of the heart is formed of two parts … and …
9. The superior vena cava is formed by … and …
10. The esophagus is related posteriorly to … and …
11. Types of muscle attachments include … and …
12. Functions of superficial fascia are … and …
13. The early placental barrier is formed of … layers , while the late placental barrier is formed of … layers
14. Each somite differentiates into a dorsolateral part called … and a ventromedial part called …
15. The part of the gut within the head fold is called …

Problem Solving

Problem 1:

A 50 year old woman fell on her outstretched hand; she had a fracture of the middle of the shaft of radius

1. Why in this type of fracture, the segments of the fractured bone tend to separate?
2. What nerve is liable to be injured?
3. What would be the paralyzed muscles?
4. What movements would be affected by such paralysis?
5. What is the name of the resulting deformity?

Problem 2:

A 55 year-old woman with a globular swelling in her left groin. She stated the swelling became smaller when she lay down but never disappears

1. What is your possible diagnosis?
2. What is meant by femoral ring?
3. What is meant by femoral canal?
4. Why the condition is common in females rather than males?
5. What are the common complications of such condition?

Problem 3:

A man was admitted to hospital, with stab wound in the 4th left intercostal space and accumulation of blood in the pericardial cavity

1. Name the condition.
2. How it can be treated.
3. Give the part of the pericardium.
4. Name 2 structures anterior to the pericardium.
5. Name 2 arteries supplying the pericardium.

June 2011

Fill in the blanks

1. The branches of the roots of the brachial plexus include … and …
2. The medial half of the breast receives arterial supply from the perforating branches of … and …
3. The anterior wall of the femoral sheath is formed by …, while the posterior part is formed by…
4. The popliteal artery begins at … and ends at …
5. Ligaments that prevent hyperextension and hyperflexion of the knee joint are … and …
6. Among the structures passes through the saphenous opening are … and …
7. The right bronchial artery arises from … artery, the left bronchial artery arises from the …
8. The hilum f the left lung, above it passes … and behind it passes …
9. The right coronary artery gives ……, ……

10. The right innominate vein is formed by the union of … and …
11. The phrenic gives motor supply to … and sensory supply to …
12. The Intervertebral disc is formed of two parts: … and …
13. By the end of the 2^{nd} week of pregnancy , the lateral plate of mesoderm split into 2 layers … and …
14. The embryonic period extends from … to … weeks of development.
15. The somite period of the embryonic development extends from the … till the … days

Problem Solving

Problem 1:

A rock climbing student fell suddenly and gasped a tree just before reaching the ground with his outstretched hands. He was found to have motor and sensory losses.

1. What nervous structure do you expect to be injured?
2. What is the name of this injury?
3. What are the paralyzed muscles?
4. What is the expected deformity?
5. Where would you test for skin sensations in such an injury?

Problem 2:

During the course of a football game, a football player developed locking of the knee joint due to violent abduction and external rotation of the leg.

1. What is the most likely structure to be injured?
2. Why is it the most likely structure to be injured?
3. Name the extracapsular ligaments of knee joint?
4. Name the ligament that prevents the hyperextension of the knee joint.
5. Name the ligament that prevent the hyperflexion of knee joint

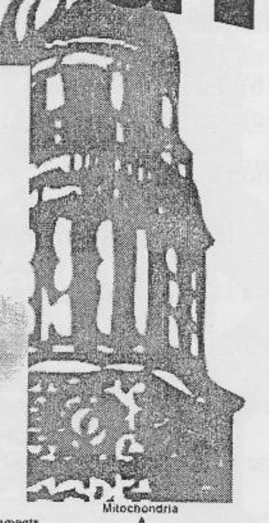
Problem 3:

A 15 years old boy was hit by a car while riding a bicycle. He felt severe pain on the left side of the chest associated with severe bleeding from the wound and a sharp bone projecting out from the wound over the lower left side of the chest

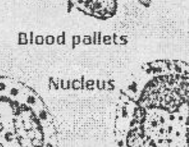
1. What was the broken bone and what structures might be perforated and injured by this broken bone?
2. What is the abdominal organ most likely to be damaged?
3. If you are going to insert an intercostal tube to save this patient, why must the intercostal tube be under water?



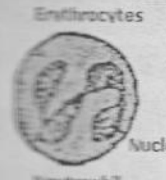


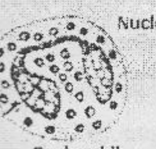


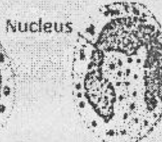


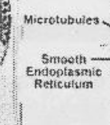


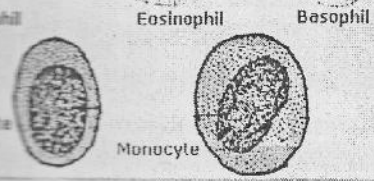


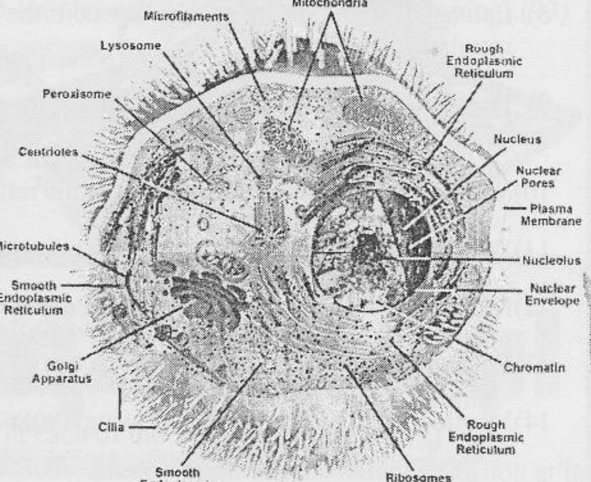












"وما يعزب عن ربك من مثقال ذرة في الأرض ولا في السماء" صدق الله العظيم

KASR ALAINY
CAIRO UNIVERSITY - FACULTY OF MEDICINE

نبض يتجدد

أسرة صلاح الدين

MIDYEAR Questions collection

THE CELL

1) Mention one specific stain for each of the following:
   a) Histiocytes (2000)
   b) fat cells (91/2000)
   c) mast cells (2000)
   d) Reticular fibers (91/2000)
   e) Liver glycogen (91)
   f) Reticulocytes (91)

2) Mention the modification of the cell membrane with reference to their functions. (90/94/2000)

3) Draw a labeled diagram of the cell membrane, showing its structure. (2001)

4) Draw a labeled diagram showing the molecular structure of the cell membrane. (2002)

5) What are the specific functions of the cell membrane?

6) What are the functions of the cell receptors and cell coat? (97)

7) Define the cell organelles. Enumerate the membranous and non-membranous cell organelles. (9

8) Enumerate with reference to the functions the organelles that participate in the cellular metabolism. (92)

9) Enumerate the cell organelles involved in the secretory activity of the cell. Mentions the functio of 2 only. (93)

10) What are the functions of the endoplasmic reticulum? (90)

11) What are the types of the endoplasmic reticulum? Mention two functions of each. (2001)

12) Mention four important function of the endoplasmic reticulum. (95)

13) Enumerate four functions of the Golgi body. (2000)

14) Mention the functions of the following: (90)
   I. mitochondria.
   II. Lysosomes.

15) Mention 2 functions only of the following: (94)
   a) Smooth endoplasmic reticulum.
   b) Lysosomes
   c) Golgi apparatus
   d) Cell coat

16) Mention one important function for each of the following organelles: (95)
   a) Lysosomes.
   b) Mitochondria
   c) Centrioles.
   d) Golgi apparatus.

17)Mention 2 functions for each of the following: (98)
a) Lysosomes.
b) Cell coat.
c) Smooth endoplasmic reticulum.
d) Golgi apparatus.

18)Mention four functions only of intracellular microfilaments in the different cells of human body. (94)

19)Differentiate between lysosomes and peroxisomes in terms of (2013)
a. Origin.
b. Contents.
c. Functions.
d. Effect of deficiency on human health.

GENETICS

1) Enumerate 4 differences between mitosis and meiosis. (2000)

2) Describe the structure of a human chromosome. (91/93)

3) Classify chromosomes according to the position of their centrioles. (2001)

4) Mention four clinical importances for chromosomal studies. (98)

5) Enumerate only four clinical importance for chromosomal studies(for karyotyping).(99)

6) Define Rh factor. Mention its clinical importance. (92/93)

7) What are the major causes of chromosomal aberrations? (97)

8) Mention four causes only which give rise to chromosomal aberrations. (94/2002)

9) Define: (2002)
a) Isochromosome.
b) Sex chromatin
c) Inversion of chromosome.
d) Genotype

10) Mention one important characteristic for each of the following: (95)
a) Down syndrome.
b) Turner syndrome
c) Cri Du-Chat syndrome
d) Kleinfelter syndrome

11) Name the chromosomal abnormality in each of the following cases (2013)
a. Loss of fragments between 2 breaks in the same arm of chromosome and fusion at the break site.
b. Two breaks in the chromosome on one side of centromere followed by rejoining in an inverted form.
c. Loss of segment from one end by a single break.
d. Addition of a fragment of one chromosome to its homologous chromosome.
e. Addition of one extra chromosome to have a karyotype of 2n+1.

f. Fusion of the long arm of one chromosome and the long arm of another non-homologous chromosome with loss of short arms of both chromosomes.

BLOOD

1) Mention 4 major functions of the blood. (97)
2) Discuss four items only about how the structure of an erythrocyte is adapted to perform its functions. (94)
3) Mention the normal and three of the abnormal colors of red blood cells. (97)
4) What is the normal diameter of RBCs? Mention s size abnormalities of RBCs. (2002)
5) What is the normal range of the average total number of erythrocytes, leukocytes? Mention onl the types and percentage of each type of leucocytes. (98)
6) Enumerate the various types of leucocytes with reference to the percentage of each. (90/99)
7) What is meant by a differential leucocytic count? Mention the percentage of each type of leucocytes. (91/92/95)
8) Enumerate the type of 2ry leucocytes and mention the mode of formation of each type. (2002)
9) Define the differential leucocytic count and mention its clinical importance. (2000)
10) Mention four functions of T-lymphocytes. (94)
11) Enumerate only the name and functions of the different types of lymphocytes. (99)
12) Mention the functions of the following: (90)
    a) T-lymphocytes.
    b) Eosinophils

13) Tabulate the main differences between T- and B-lymphocytes. (92)
14) How to differentiate microscopically between neutrophils and eosinopils in a given stained blo film (mention 2 differences). (2001)
15) Tabulate the differences between the white and red blood cells. (93/95)
16) Mention the ultrastructure of blood platelets, the normal platelets count. (90)
17) Explain how the structure of neutrophil is related to its functions.(2013)
18) Mention 2 causes only for each of the following: (94)
    a) Neutrophilia (increase of neutrophils).
    b) Eosinophilia(increase of lymphocytes)
    c) Lymphocytosis(increase of leucocyte
19) Enumerate the various cells present in the bone marrow. (91)

20) Give 2 histological differences between mast and plasma cells. (2001)
21) Write the names of the cells involved in erythropoiesis.
22) What are the stages of erythropoiesis? (92)
23) Mention 4 causes of anemia. (2001)
24) Enumerate only the names of the cells which are involved through the development of neutrophils. (97/99)
25) Mention the type and structure of cytoplasmic granules observed in an EM picture of a neutrophil leukocyte. (2002)
26) Mention the various stages in granulopoiesis. (93)

EPITHELIAL TISSUE

1) Enumerate only the different types of stratified epithelium. Mention 2 sites in human body for each type. (94)
2) Mention 4 sites for non-keratinizing stratified squamous epithelium. (98)
3) Mention 4 sites for squamous epithelium (2 keratinized and 2 non-keratinized). (2001)
4) Classify glandular epithelium according to the mode of excretion and mention one example for each type. (90/91/92)
5) Classify the glandular epithelium according to the mode of secretion. (93)
6) Classify the glandular epithelium according to their functions; give 2 examples for each type. (97)
7) Classify glands according to their mode of secretion and give one example of each. (2001)
8) Where does neuro-epithelium occur in human body? (94)
9) Write the characteristics of the epithelial tissue. (90)
10) List the differences between:
    a. Zonula adherence and macula.
    b. Zonula occludens and gap junction.
11) What are the main functions of epithelial tissue? (97)
12) Enumerate 4 characteristics of epithelium. (95/2000)
13) What is the lining epithelium of each of the following:
    a) Esophagus(92)
    b) Small intestine(90/91/93/95)
    c) Gall bladder(97/2000/2002)
    d) Thyroid follicles(90/91/92/93)
    e) Vas deferens(90/93)
    f) Epididymis(92)
    g) Urinary bladder (90/91/92/95/2000/2002)
    h) Skin(97/98/99/2000)
    i) Trachea(91/92/95/98/99/2000/2002)
    j) Epidermis of skin(91/92)
    k) Serous membranes(92)
    l) Ureter(93/98/99)
    m) Heart(97/98)
    n) Aorta(99/2002)
    o) Uterus(91/97)



p) Vagina(95)
q) Fallopian tube(92)
r) Blood vessel(91)
s) Pancreas. (91)

CONNECTIVE TISSUE

1) Enumerate the cellular pattern of connective tissue proper with reference to their functions. (91)
2) What are the various types of connective tissue proper? Mention 2 sites only in human body for each type. (94)
3) Enumerate 4 connective tissue cells involved in immune function and mention one major functi of each. (2002)
4) Mention only the name and functions of free connective tissue cells present in the connective tissue proper. (99)
5) Mention the name and the functions of only 4 types of fixed connective tissue cells. (98)
6) What are that types of adipose connective tissue (fat)? Give 2 sites of each. (2001)
7) Mention 4 characteristics for white fibrous tissue.(tendinous connective tissues) (97)
8) Mention 4 characteristics of the pericyte cell (one of the connective tissue cells). (97)
9) Name 2 sites for each of the following:
   a. Loose C.T.
   b. Adipose C.T.
   c. White fibrous C.T. (2002)
   d. Yellow elastic C.T. (2002)



أصبح من العادى جدا أن ترى مجموعة من المخابيل يرقصون فى الشوارع مثل القبائل الأفريقية
بعد إنتهاء أى مباراة كرة قدم. شاكرين الإله على أنهم من مشجعين الفريق الفائز.
مش مشكلة إن المسجد الأقصى بضيع المهم الدورى. ده حتى المساجد كتير إنما هو دورى واحد.

CARTILAGE

1) What are the types of cartilage? Give 2 sites for each type in human body. (91/94)
2) Mention the types of cartilage present in human body with reference to site and functions. (93)
3) Draw a labeled section of costal cartilage. (92)

4) Give 4 sites of hyaline cartilage. (2001)
5) Mention 2 characteristics and 2 sites for white fibro cartilage. (98/99)
6) Give 2 sites for each of the following: (2002)
   a. yellow elastic cartilage
   b. white fibro cartilage
7) mention the type of cartilage in the following organs: (2000)
   a. trachea
   b. ear pinna
   c. intervertebral discs
   d. costal cartilages

BONE

1) Enumerate only the types and functions of different bone cells. (99)
2) Draw a labeled section in ground compact bone. (93/95)
3) Draw a labeled haversian system of a compact bone. (91)
4) Mention the characteristics of spongy bone. (98/99)

MUSCULAR TISSUE

1) What are the histological characteristics of purkinje fibers of the heart? (98)
2) What is meant by myo-epithelium? Give 3 sites of it. (2002)

OTHERS

1) Mention the sites of the following structures: (92)
   a. Perichondrium
   b. Mast cells
   c. Nucleus
   d. Eosinophils
   e. Cilia
   f. Microvilli
   g. Blood platelets
   h. Osteoclasts
2) Mention the site of the following structures. (92)
   a. Yellow elastic cartilage
   b. Mucoid connective tissue
   c. Cancellous bone
   d. White fibers
   e. Adipose connective tissue
   f. haversian system
   g. endocrine glands
   h. stratified columnar epithelium
3) Write one site for each of the following(95)
   a. Yellow elastic cartilage
   b. Hyaline cartilage
   c. White fibro-cartilage
   d. Mucoid connective tissue
4) What are the functions of the following:
   a. Mast cells
   b. Osteoblasts
   c. Perichondrium
   d. Nucleus

MID YEAR EXAMS

FEBRUARY 99

Answer the following questions :(2marks each)

1) What is the lining epithelium of each of the following?
a) Aorta b) Ureter c) Trachea d) Skin

2) What are the specific functions of the cell coat?
3) Enumerate only the names and functions of the different types of T-lymphocytes.
4) Enumerate only 4 clinical importances of chromosomal studies (for karyotyping).
5) Enumerate only the names of the specific cells involved in through the development of neutrophils.
6) Mention only the types and percentage of different types of leukocytes.
7) Mention only the names and functions of free connective tissue cells present in connective tissue prop
8) Enumerate only the types and functions of different bone cells.
9) Mention 4 characteristics only for spongy bone.(cancellous bone)
10) Mention only 2 characteristics and 2 sites for elastic fibro-cartilage.

JANUARY 2000

Answer the following questions:
1) Define the differential leucocytic count and mention its clinical importance.
2) Enumerate 4 differences between mitosis and meiosis.
3) Write 4 histological characteristics of epithelium.
4) Mention 4 modification of cell membrane with references to their roles in cell function.
5) Write the names of cells involved in erythropoiesis.
6) Mention the epithelium of the following:
   a. Gall bladder
   b. Urinary bladder
   c. Trachea
   d. Skin
7) Enumerate 4 functions of the Golgi body.
8) Mention the type of cartilage in the following organs:
   a. Trachea
   b. Ear pinna
   c. Intervertebral discs
   d. Costal cartilages
9) Mention one specific stain for each of the following:
   a. Histiocytes
   b. Fat cells
   c. Mast cells
   d. Reticular fibers

10) Name 2 sites of each of the following:

a. Loose C.T.
b. Adipose C.T.
c. White fibrous C.T.
d. Yellow elastic C.T.





Club

JANUARY 2001

Answer all questions:

1) Mention 4 sites of stratified squamous epithelium (2 keratinized and 2 non-keratinized).
2) What are the types of endoplasmic reticulum? Mention 2 function of each.
3) How to differentiate microscopically between neutrophils and eosinophils in a given stained blood film (mention 2 differences).
4) Classify chromosomes according to the position of their centromeres.
5) Give 4 sites of hyaline cartilage.
6) Mention 4 causes of anemia.
7) Give 2 histological differences between mast and plasma cells.
8) Classify glands according to their mode of secretion and give one example of each.
9) What are the types of adipose connective tissue (fat)? Give 2 sites of each.
10) Draw a labeled diagram of the cell membrane, showing its structure.

JANUARY 2002

1) Draw a labeled diagram showing the molecular structure of the cell membrane.
2) Enumerate 4 connective tissue cells involved in immune function and mention one major function of each.
3) Mention the epithelium of each of the following organs:
   a. Aorta
   b. Trachea
   c. Urinary bladder
   d. Gall bladder

4) What is the normal diameter of RBCs? Mention 3 size abnormalities of RBCs.
5) Enumerate the type of 2ry leucocytes and mention the mode of formation of each type.
6) Define each of the following:
   a. Isochromosomes
   b. Sex chromatin
   c. Inversion of chromosomes
   d. Genotype
7) What is meant by myo-epithelium? Give 3 sites of myo-epithelium.
8) Mention 4 causes of chromosomal aberrations.
9) Give 2 sites of each of the following:
   a. Yellow elastic C.T.
   b. White fibrous C.T.
   c. Yellow elastic cartilage
   d. White fibro-cartilage
10) Mention the type & structure of cytoplasmic granules observed in EM of picture of a neutrophils leukocyte.

FINAL YEAR QUESTIONS

THE CELL

1) Give a full account of the structure and functions of the cell membrane (cell coat functions are required, but cellular junctions are not required). (98)
2) Give a full account on the structure of the cell membrane (cellular junctions are not required). (97)
3) Give an account on endoplasmic reticulum. (91/93/2006)
4) Give a full account on the types and function of lysosomes. (98/99)

- الانسان دون أمل كنبات دون ماء.. ، ودون ابتسامة كوردة دون رائحة.. ، و إنه دون حب كغابة احتراق شجرها.. و الإنسان دون إيمان وحش في قطيع لايرحم.
- مافائدة القلم إذا لم يفتح فكرا.. أويضمد جرحا.. أويرقرق دمعة.. أويطهر قلبا.. أويكشف زيفا.. أو يبني صرحا.. يسعد الإنسان في ظلاله.

5) Write an account on lysosomes. (2000)
6) Give a full account on the electron microscopic structure and functions of lysosomes and Golgi apparatus. (97)
7) Give a short account on Lysosomes, with references to their types, fate and functions. (2007)
8) Describe Histological structure & function or rough endoplasmic reticulum.(sep 2008)
9) Discuss the following:
   a. Lipid component (molecules) of the cell membrane. (2005)
   b. Endoplasmic reticulum .(2004)
   c. Filamentous structure in the cytoplasm. (2002)
10) Describe the different types of lysosomes. (2011)
11) Differentiate between rER and sER in terms of:
   a. LM
   b. EM
   c. Functions
   d. Cell types in which each is typically abundant ; include examples (2011)(2014)

12) List the non membranous organelles and describe the structure (L.M. &E.M.) of the organelles involved in protein synthesis.(2014)

GENETICS

1) Discuss translocation in chromosomes. (2005)
2) Give an account on the structure of the chromosomes and their classification according position of the centromeres. (2006)
3) Give short account on sex Chromatin (Barr Body) &its clinical importance (June2009)
4) Define aneuploidy. List the types & causes of aneuploidy. (2010)
5) Explain how determination of type of intermediate filaments can help to diagnose cell o in tumors. (2011)
6) Describe 5 different types of structural aberrations in chromosomes. (2011)
7) Compare between:
   a. Ring chromosome and inversion. b. Translocation and duplication. (201
8) List clinical importance of chromosomal examination. (MAY2014)
9) State the causes of aneuploidy. (2014)

BLOOD

1) Give an account on neutrophil leukocyte (%, diameter, L.E, E.M and function). (91/92/93/2001/June 2009)
2) Discuss in detail the granular leucocytes. (97)
3) Give an account on differential leucocytic count. (92)
4) Tabulate differences between different granular leucocytes. (95)
5) Discuss the detailed structure and functions of non-granular leucocytes. (97)
6) Discuss the detailed structure and function of non-granular leukocytes (leukocytic coun and development are not required). (98/99)
7) Give a full account on the different types of leukocytes (the leukocytic counts and development are not required). (94)
8) Give a short account on Mast cell (site, L.M, E.M & functions)(sep 2009)
9) Give short account on Mast cell & Neutrophil with reference to their functional ultra structure(June 2008)
10) Mention differences between Red blood corpuscles, white blood cells (sep2008)

11) Function & ,ultrastructure of mast cell(sep2008)

12) Describe the Histological structure of blood platelets. (origin, number, L.M, E.M and functions) (sep2009)

13) In a table-form mention the differences between erythrocytes and leucocytes. (98)

14) Give a detailed account on the role of lymphocytes in the immune system. (2002)

15) A patient has acute pyogenic infection (appendicitis).
- What cell is expected to show increase in its differential leukocytic count?
- State the functions performed by this leukocyte. (2011)

16) Neutrophils are the most numerous granulocytes.
  a. differentiates between the 2 granule types in neutrophils as regards size, percentage and content.
  b. List 4 functions of the cell.
  c. Sketch a labeled diagram with pencil for the LM of the cell. (2012)

17) Enumerate blood cells involved in allergic reaction. Describe one of them in terms of: Differential count, Life span, Diameter, L.M., E.M. and function. (May2014)

18) Describe L.M. &E.M. features of RBCs. Mention the mode of adaption of RBCs to perform their functions. (2014)

19) Mention the L.M. & E.M. of each of the following
  a. Macrophages.
  b. Plasma cells.

صلاة الضحى .....صدقات

"يصبح على كل سلامة من أحدكم صدقة ، فكل تسبيحة صدقة ، وكل تحميدة صدقة، وكل تهليلة صدقة ، وكل تكبيرة صدقة ، و أمر بالمعروف صدقة، ونهي عن المنكر صدقة ،ويجزئ من كل ذلك كله ركعتان يركعهما من الضحى "

EPITHELIAL TISSUE

1) Enumerate the general characteristics of epithelium. Describe the different types of simple epithelium with reference to their sites and functions. (91)

2) Give an account on glandular epithelium. (93)

3) Give an account on with reference to their functions& Histological structure of transitional epithelium. (sep 2009)

4) Give a full account on transitional epithelium. (98)

5) Write a detailed account on stratified squamous epithelium. (98/ Sep 2008)

6) Discuss apical & basal modifications of epithelial cells surfaces. (2002)



7) give a short account on the Myoepithelium. (2005)

8) Discuss each of the Transitional epithelium (characters and sites). (2006)

9) Name and describe the structure of epithelium lining the urinary bladder. (2011)

10) Epithelial cells are linked together by different types of junctions.
   a. name the types of junctions found between epithelial cells.
   b. which junction(s) in the answer to question 3a is (are) associated with:
      i. A belt like structure.
      ii. Condensation of actin filaments at cytoplasmic side.
      iii. Intermediate filaments.
      iv. Narrow gap. (2012)

11) Indicate the level of respiratory system where the following take place:
   a. First disappearance of goblet cells.
   b. First disappearance of cilia
   c. First disappearance of glands.
   d. Last appearance of smooth muscle.
   e. Last appearance of cartilage.
   f. Transition of pseudostratified columnar ciliated epithelium to columnar ciliated epithelium.
   g. Transition of simple columnar ciliated epithelium to simple cubical ciliated epithelium.
   h. Transition of simple cubical epithelium to simple squamous epithelium. (2012)

12) Correlate the structure of each type of junction to its function with particular reference their sites:
   a. Macula adherences.
   b. Gap junction. (MAY2014).

13) Describe the histological structure of stratified squamous epithelium. Enumerate its types and list two sites for each type. (2014)

CONNECTIVE TISSUE

1) Discuss the cellular pattern and fibers of connective tissue proper with reference to their function.

2) Write a detailed account of the structure and functions of the different cells in the connective tissue proper. (98)

3) Give short account on fibroblast with reference to its functional ultra structure(June200

4) Draw colored diagrams of Hyaline cartilage. (2007/sep 2008/sep 2009)

5) Write a short note on each of the following:
   a) Hyaline cartilage (structure and sites). (2006)
   b) Adipose connective tissue. (June 2009)

6) Discuss Cells responsible for synthesis and maintenance of connective tissue. (2005)

7) give a short account on the Matrix of hyaline cartilage. (2005)

8) Mention & describe the histological changes that occur in the epiphyseal plate. (2010)

9) Define the macrophage system & mention the histological characters of its cells origin and functions (2010)

10) Mast cell is one of the connective tissue cells.
    a. Describe LM & EM features of this cell.
    b. State functions performed by this cell. (2011)

11) List the type of intermediate filaments with reference to their sites. (MAY2014)

12) Mention the site and the function of each of the following:
    a. Fibroblast   b. chondroblast   c. Mast cell. (MAY2014).

13) Describe the histological structure of white fibro-cartilage and list four sites for this type of cartilage. (2014)

BONE

1) Discuss the bone cells. (2002)

2) Name & Describe the bone forming cells and the resorbing (destroying) cells with reference to their functional structure and ultrastructures .(June 2008,sep 2008)

3) Discuss the structure of the compact bone with particular reference to the various types of bone cells and their function. (93)

4) Give a full account on the structure of the spongy bone (cancellous bone). (97)

5) Draw a colored & labeled diagram of spongy (cancellous) bone. (2001/2004/2005)

6) Write a short note on Differences between megakaryocyte and osteoclast. (2006)

7) Give a full account on the different types of bone cells. (92/94/99/2000)

8) Discuss the following:
    a. Types & structure of joints. (2005)
    b. Bone cells. (2007)
    c. Osteocytes (Origin, L.E, E.M and function) (June 2009)
    d. Osteoblasts (origin, site, L.E., E.M. & functions) (sep 2009)

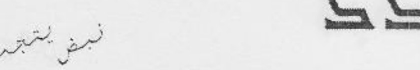
9) Bone cells are responsible for different functions.
    d. Name the cells responsible for bone resorption.
    e. Outline how this resorption takes place.
    f. Describe LM & EM picture of the cell.
    g. Illustrate LM picture with colored labeled diagram.

10) Compare between osteoblast & osteoclast as regard: origin, site and structure. (MAY2014)

11) Describe the E.M. features of the following:
   a. osteocytes. b. osteoclasts. (2014)

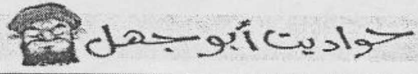
MUSCULAR TISSUE

1) Give an account on motor end plate. (92)
2) Give an account on muscle spindle. (93)
3) Mention differences between Different types of muscle fibers.(sep 2008)
4) Discuss the light and electron microscopic structures of the cardiac muscles and the conducting system of the heart including the purkinje muscle fibers. (97)
5) Discuss the histological structure of the cardiac muscle& the impulse conducting system the heart including purkinje fibers. (98)
6) discuss the histological structure (LM.& E.M.) of skeletal muscle fiber (June 2008)
7) Give a detailed account on the conducting system of the heart. (2001)
8) Give an account on purkinje muscle fibers. (97)
9) Draw labeled & colored diagram of TS /LS skeletal muscle. (2002/2006/2007/sep2009)
10) Describe the histological structure of the skeletal muscle (L.M & E.M) with reference to the nervous receptor which is found in muscular tissue.(June 2009)
   a. Write a short note on each of the following: b. EM of myofibrils. (2006)
11) Give an account on:
   a. cardiac muscle fibers (LM&EM pictures). (2005)
   b. Motor end plate. (2006)
12) Define & describe the histological structure of a sarcomere.
13) In a table form mention 5 histological differences between:
   a. Skeletal, cardiac and smooth muscle fibers.
   b. Spinal and sympathetic ganglion. (2011)
14) Tabulate eight histological differences between skeletal, cardiac and smooth muscle fibers. (2012)
15) Compare between skeletal muscle and cardiac muscle as regard: different organelles and inclusion in their sarcoplasm. (2014)
16) Describe the E.M. of myofibrils. (2014)



NERVOUS TISSUE

1) Describe in detail the cytological characteristics of neuron with particular reference to their types and sites. (91)
2) Illustrating your answer with diagrams, describe the detailed histological structure (LM & EM) of the neuron, with special reference to the classification of the neurons. (2002/2005/sep 2008)
3) Draw a colored labeled diagram for Spiral ganglia. (H: & E) (June2009)
4) Give a detailed account of classification of neurons, with reference to sites. (2001)
5) Define neuroglia and give full account on their types, structure, with special reference to their classification, location and functions. (June 2008)
6) Give an account on
   a. neuroglia cells with reference to functions. (91/95)
   b. Peritrichial nerve endings. (2005)
   c. Differences between spinal and sympathetic ganglia (table form).(2006/sep2009)
7) Give a detailed account on neuroglia proper. (2000)
8) Tabulate differences between spinal and autonomic ganglia (95/97)
9) Discuss astrocytes. (2004)





10) Illustrating your answer with a labeled diagram , describe the histological structure of neuron as regards:
   a. Classification [2Ms]
   b. Cell body (size, shape , nucleus , cytoplasm) [4Ms]
   c. Processes [2Ms]
   d. Diagrams [2Ms]

11) Classify neurons in term of their number of dendrites and axons with reference to exa (2012)

12) Differentiate between spinal and sympathetic ganglia. (2014)

SKIN

1) Describe in detail the cellular pattern of the epidermis of human thick skin with referenc functions. Enumerate only the various types of nerve endings present in both epidermis a dermis of skin. (95)
2) Give short account on Melanocyte (melanin synthesis is not required) with reference to i functional ultra structure(June2008)
3) Write a detailed account on the structure of the thick non-hairy skin. Mention its functio and types of diseases that can be diagnosed through examination. (97)
4) Write a detailed account on the structure of thick non-hairy skin. (94/99)
5) Discuss (with drawing) the histological structure of thick non-hairy skin and mention th names and functions of the receptors found in its layers. (2000)
6) Discuss keratinocytes of skin epidermis. (2001)
7) Mention light & electron microscopic picture of keratinocytes of the epidermis.(June2009/sep 2009)
8) Draw colored & labeled diagram of thick non-hairy skin. (2002/2006)
9) Discuss each of cells of skin epidermis. (2004)
10) Give an account on: keratinocytes of skin epidermis. (2005/2007)
   - Pacinian corpuscle. (2005)
11) Draw al labeled diagram for a section of :(5Ms each)
   - Thick skin

قال الفضيل بن عياض لرجل : كم أتت عليك؟! قال : ستون سنة ،قال :فانت منذ ستين سنة تسير الى ربك توشك ان تبلغ، فقال الرجل : فما الحيلة ؟ قال يسيرة ،قال:فما هي ؟

قال: **تحسن فيما بقي يغفر لك ما مضى ،فانك ان اسأت ،أخذت بما مضى وبما بقي.**

****

BLOOD VASCULAR SYSTEM

1) Draw colored & labeled diagrams of medium-sized artery & vein. (2001)
2) Give an account on arterio-venous anastomosis. (92)
3) Discuss differences between medium- sized artery & vein. (table form) (2002/ Sep2008/sep 2009)
4) Tabulate the differences between medium sized artery and vein. (97/99/2007)
5) Discuss eosinophils & basophils. (2004/2007)
6) Name the types of blood capillaries and compare them in terms of their structure and sites of distribution.(June 2008)
7) Draw a colored labeled diagram of aorta. (2000/2004/June 2008/ June 2009)
8) Give an account on:
   a. Arteriovenous anastomosis. (2005)

   a. Normoblasts. (2005)
   b. Blood capillaries (structure, types and sites of each type). (2006/June2009)
9) Discuss each of the following:
   a. Blood platelets. (2003)
   b. Differences between red blood corpuscle (RBC's) and white blood cells (WBCs) in a table form. (2006)
   c. Mast and plasma cells. (2006/2007)
   d. Null cells. (2005)
10) Draw a labeled diagram of Aorta (2010)
10) Describe the histological characters (LM & EM) and functions of blood platelets (2010)
11) Compare between somatic and sinusoidal blood capillaries as regard diameter and structure.(2014)
12) Differentiate between histological structure of large elastic and medium sized muscular arteries. (2014)

LYMPHATIC SYSTEM

1) Give a full account on the spleen and blood supply. (98)
2) Discuss in detail the histological characteristics of human spleen with special references to its blood circulation and functions. (91/+content 95)

3) Illustrating your answer with a colored diagram, describe the histological picture of
   - The spleen, with references to its microcirculation, theories of splenic circulation & functions. (2001)
   - Lymph node with reference to its function(June 2009)



4) Describe in detail the structure of human lymph node with references to its cellular contents, lymph circulation and its role in the living body. (92/2004/2007)
5) Draw a colored labeled diagram of lymph node. (2000/2005/ June 2008)
6) Discuss the structure of lymphocytes, with special references to their role in immunity. (2002)
7) In a table form compare spleen & lymp node (June 2008)
8) Give a short account on the following: Adenoids (pharyngeal tonsil). (2005)
9) discuss each of the following: Mast and plasma cells. (2006)
10) Describe the histological structure of a thymic lobule with reference to the blood-thymic barrier(June2009)
11) Draw a colored labeled diagram of the following:
    a. Spleen. (2006/ Sep2008)

12) Blood sinusoids are one type of capillaries:

a. name four histological characters of sinusoids.

b. state one site with reference to function. (2012)

12) Define the blood thymic barrier .Mention its histological structure, components and function.

13) List the different types of tonsil. Mention the main histological structural components of tonsil located in oropharynx. (2014)

FINAL YEAR

JUNE99

Answer the following questions

1) Discuss the detailed structure and functions of non-granular leucocytes (leukocytic count and development are not required).
2) Write a detailed account on the structure of thick non-hairy skin.
3) Give a full account on the structure of lung alveoli, alveolar cell, alveolar phagocytes and blood air barrier.
4) Give a full account on the following:
    a. types and functions of lysosomes.
    b. Different types of bone cells.

JUNE2000

Answer all the following questions:

1) Discuss (with drawing) the histological structure of thick (non-hairy) skin and mention the names and functions of receptors found in its layers.
2) Draw a colored labeled diagrams of the following:
   a. Lymph node
   b. Aorta
3) Give a detailed account on:
   a. the role of lymphocytes in the immune system.
   b. Neuroglia proper
4) Write an account on each of the following:
   a. lysosomes
   b. bone cells

MAY2001

Answer all the questions:

1) Illustrating your answer with a colored diagram, describe the histological picture of the spleen, with references to its microcirculation, theories of splenic circulation & functions.
2) Draw a colored & labeled diagrams of the following:
   a. medium-sized artery & vein
   b. spongy(cancellous) bone
3) give a detailed account on the following:
   a. conducting system of the heart
   b. classification of neurons, with reference to sites
4) discuss the following:
   a. keratinocytes of skin epidermis
   b. neutrophil leucocytes (polymorphs).

MAY2002

1) Illustrating your answer with diagrams, describe the detailed histological structure (LM&EM) of the neuron, with special reference to the classification of the neurons.
2) Draw colored & labeled diagrams of the following:
   a. thick(non-hairy)skin
   b. TS of skeletal muscle
3) Discuss the following:
   a. structure of lymphocytes, with reference to their role in immunity
   b. filamentous structures in the cytoplasm
4) discuss each of the following:
   a. steps of granulopoiesis
5) discuss the following:
   a. lysosomes
   b. neuroglia
6) discuss each of the following:
   a. glandular epithelium
   b. mast and plasma cells

JUNE2004

ANSWER ALL QUESTION

1) Describe the detailed microscopic structure of the lymph node, with special references to its functions.(Illustrate your answer with a colored labeled diagram)
2) Draw & label the following diagrams:
   A. Aorta
   B. Spongy bone
3) Discuss the following:
   A. Endoplasmic reticulum
   B. Eosinophils & basophils
4) Discuss each of the following:
   A. Cells of skin epidermis
   B. Astrocytes

JUNE2005

1) Illustrating your answer with diagrams, describe the detailed histological (LM&EM) structure of the neuron, with special reference to classification of neurons.
2) Give an account on the following:



a. cardiac muscle fibers(LM&EM pictures)
b. keratinocytes of skin epidermis.
c. Arteriovenous anastomosis.

3) Discuss the following:
a. Lipid component(molecules) of the cell membrane
b. Cells responsible for synthesis and maintenance of connective tissue.
c. Types & structure of joints
d. Pacinian corpuscle
e. Null cells

4) Discuss each of the following:
a. blood platelets
b. translocation in chromosomes

5) give a short account on the following:
a. Normoblasts
b. Myoepithelium
c. Matrix of hyaline cartilage
d. Peritrichial nerve endings
e. Adenoids(pharyngeal tonsil)

6) Draw colored and labeled diagrams of the following:
a. lymph node
b. spongy bone

JUNE2006

1) Illustrating your answer with a colored diagram, describe the detailed histological structure of the thick (non hairy) skin. Enumerate the different types of receptors present in each type.

2) Draw a colored labeled diagrams of the following:
a. Spleen
b. T.S in skeletal muscle

3) Give an account on each of the following:
a. endoplasmic reticulum
b. structure of the chromosomes and their classification according to position of the centromeres

4) discuss each of the following:
a. Transitional epithelium(characters and sites)
b. Differences between red blood corpuscle (RBCs) and white blood cells(WBCs) in a table form
c. Mast and plasma cells

5) Write a short note on each of the following:
   a. EM of myofibrils
   b. Hyaline cartilage(structure and sites)
   c. Differences between megakaryocyte and osteoclast
6) Give an account on :
   a. Blood capillaries (structure, types and sites of each type).
   b. Motor end plate
   c. Differences between spinal and sympathetic ganglia (table form).



من الأمراض المقوزة التى أصابت أغلب شباب الأمة مرض بذاءة اللسان، حيث أصبح من العادى جداً أن ترى الشاب يستخدم أقذر الألفاظ ليشرح لزميله أبسط المواقف، بل و أصبح من الصعب ان يتفاهم بعض طلبة الثانوى بلغة مهذبة، فذلك يُعد ضعف فى اللغة و وهن فى الحُجة و المنطق .

JUNE2007

Illustrate your answer with diagrams:

Answer all the following

1) Describe the histological structure lymph node, with reference to lymph circulation, cellular contents and functions.
2) Draw colored diagrams of :
   a. Skeletal muscle.
   b. Hyaline cartilage
3) Give a short account on:
   a. Lysosomes, with references to their types, fate and functions.
   b. Keratinocytes.
4) In a table form compare between medium sized artery & vein.
5) Discuss the following:
   a. Bone cells.

b. Eosinophils.
c. Mast cells & plasma cell.

June 2008

Illustrate your answers with diagrams whenever possible:
Answer the following questions:

1. discuss the histological structure (LM.& E.M.) of skeletal muscle fiber (10 marks)
2. 2. Draw & Label colored diagrams of : (5 marks each)
   a- T.S. in Aorta
   b. Lymph node.
3. a- Name & Describe the bone forming cells and the resorbing (destroying) cells with reference to their functional structure and ultrastructure(5marks)
   b- Name the types of blood capillaries and compare them in terms of their structure and sites of distribution. (5 marks)
4. In a table form compare spleen & lymp node (5 marks)
5. Define neuroglia and give full account on their types, structure, with special reference to their classification, location and functions. (5 marks)

6. Give short account on the following cells with reference to their functional ultra structure: (10 marks)
   a.fibroblast
   b.Mast cell
   c.Neutrophil
   d.Melanocyte (melanin synthesis is not required)

September 2008

Illustrating your answers with diagrams answer the following questions:

1. Describe the histological structure & classification of neurons. (10marks)
2. Draw a labeled colored diagram for: (5 marks each)
   a- Hyaline cartilage.

b- Spleen

3. Mention differences between: (5 marks each)
   a- Red blood corpuscles, white blood cells.
   b-Different types of muscle fibers.
   c- Medium sized artery& medium sized vein.
4. Describe: (5marks)
   a- Histological structure & function or rough endoplasmic reticulum.
   b- Histological structure of stratified squamous epithelium.
   c- Function & ultrastructure of: i. mast cell ii. Osteoclast cell.

May 2009

Answer the following questions:

1. Illustrating your answer with diagrams, describe the histological structure of the skeletal muscle (LM & EM) with references to the nervous receptor which is found in muscular tissue. (10 marks)
2. Draw a colored labeled diagram for: (5 marks each)
   a- Spiral ganglia. (H: & E)
   b- Aorta.
3. Describe the histological structure of a thymic lobule with reference to the blood-thymic barrier (5 marks)
4. Mention light & electron microscopic picture of kerratinocytes of the epidermis. (5 marks)
5. Give short account on (4 marks each)
   a) sex Chromatin (Barr Body) &its clinical importance.
   b) Adipose connective tissue.
   c) Osteocytes (Origin, L.E, E.M and function)
   d) Neutrophils (%, diameter, L.E, E.M and function)
   e) Types of blood capillaries

هجر القرآن

بهجر سماعه والايمان به والاصغاء اليه وهجر العمل به وهجر تحكيمه والتحاكم اليه وهجر تدبره وتفهمه والاستشفاء به من جميع امراض القلوب وكل هذا داخل في قوله تعالى :(وقال الرسول يا رب إن قومي اتخذوا هذا القرآن مهجورا).

Sept. 2009

1. Illustrating your answer with diagrams, describe the histological structure of lymph node with reference to its function (10 marks)
2. Draw a labeled diagram for: (5 marks each)
   A) Hyaline cartilage. B) Skeletal muscle (L.S).
3. Describe the Histological structure of blood platelets. (origin, number, L.M, E.M and functions)
4. Mention light, electron microscopic picture and function of non-keratinocytes of the epidermis. (5 marks)
5. Give a short account on: (4 marks each)
   a) Histological structure of transitional epithelium.
   b) Mast cell (site, L.M., E.M. & functions)
   c) Osteoblasts (origin, site, L.E., E.M. & functions)
   d) Different between spinal & sympathetic ganglia.
   e) Differences between a medium sized artery & a medium sized vein.

June 2010

Essay Questions (10 Ms each)

1. Draw al labeled diagram for a section of :(5Ms each)
   a. Thick skin.
   b. Aorta.

Short Answer Questions

2. Define aneuploidy. List the types & causes of aneuploidy.
3. Describe the histological characters (LM & EM) and functions of blood platelets
4. Define the macrophage system & mention the histological characters of its cells origin and functions

June 2011

1. Describe the different types of lysosomes.
2. Explain how determination of type of intermediate filaments can help to diagnose cell origin in tumors.
3. Describe 5 different types of structural aberrations in chromosomes.
4. Name and describe the structure of epithelium lining the urinary bladder.
5. Mast cell is one of the connective tissue cells.
   a. Describe LM & EM features of this cell.
   b. State functions performed by this cell.
6. Bone cells are responsible for different functions.

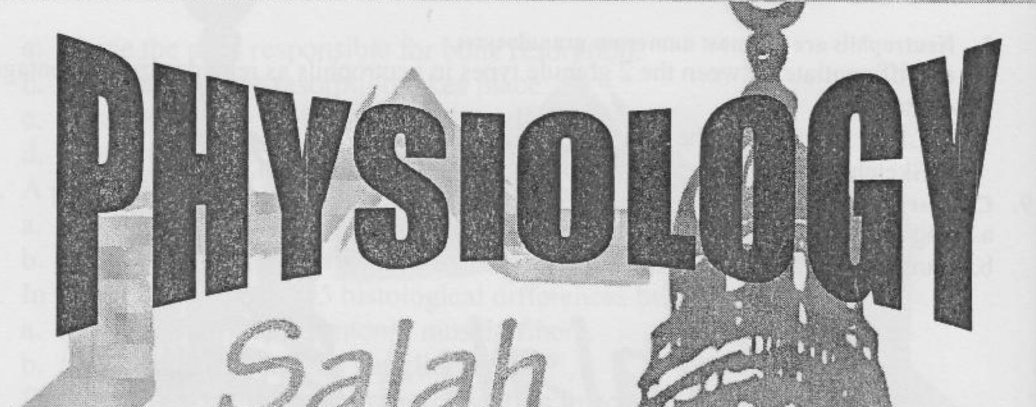
a. Name the cells responsible for bone resorption.
b. Outline how this resorption takes place.
c. Describe LM & EM picture of the cell.
d. Illustrate LM picture with colored labeled diagram.

7. A patient has acute pyogenic infection (appendicitis).
   a. What cell is expected to show increase in its differential leukocytic count?
   b. State the functions performed by this leukocyte.
8. In a table form mention 5 histological differences between:
   a. Skeletal, cardiac and smooth muscle fibers.
   b. Spinal and sympathetic ganglion.
9. Draw a colored labeled diagram for section in aorta.

June 2012

1. **Differentiate between rER and sER in terms of :**
   a. LM
   b. EM c. Functions
   d. Cell types in which each is typically abundant ; include examples
2. **Blood sinusoids are one type of capillaries:**
   a. name four histological characters of sinusoids.
   b. state one site with reference to function.
3. **Epithelial cells are linked together by different types of junctions.**
   a. name the types of junctions found between epithelial cells.
   b. which junction(s) in the answer to question 3a is (are) associated with:
      i. A belt like structure.
      ii. Condensation of actin filaments at cytoplasmic side.
      iii. Intermediate filaments.
      iv. Narrow gap.
4. **Classify neurons in term of their number of dendrites and axons with reference to examples.**
5. **Tabulate eight histological differences between skeletal, cardiac and smooth muscle fibers.**
6. **Mention the site and function of the following cells:**
   a. Mast cells. b. Osteoblasts.
   c. Clara cells. d. Histiocytes.
7. **Indicate the level of respiratory system where the following take place:**
   a. First disappearance of goblet cells.
   b. First disappearance of cilia
   c. First disappearance of glands.
   d. Last appearance of smooth muscle.
   e. Last appearance of cartilage.
   f. Transition of pseudostratified columnar ciliated epithelium to columnar ciliated epithelium
   g. Transition of simple columnar ciliated epithelium to simple cubical ciliated epithelium.
   h. Transition of simple cubical epithelium to simple squamous epithelium.

8. **Neutrophils are the most numerous granulocytes.**
   a. Differentiate between the 2 granule types in neutrophils as regards size, percentage and content.
   b. List 4 functions of the cell.
   c. Sketch a labeled diagram with pencil for the LM of the cell.
9. **Compare between:**
   a. Ring chromosome and inversion.
   b. Translocation and duplication.



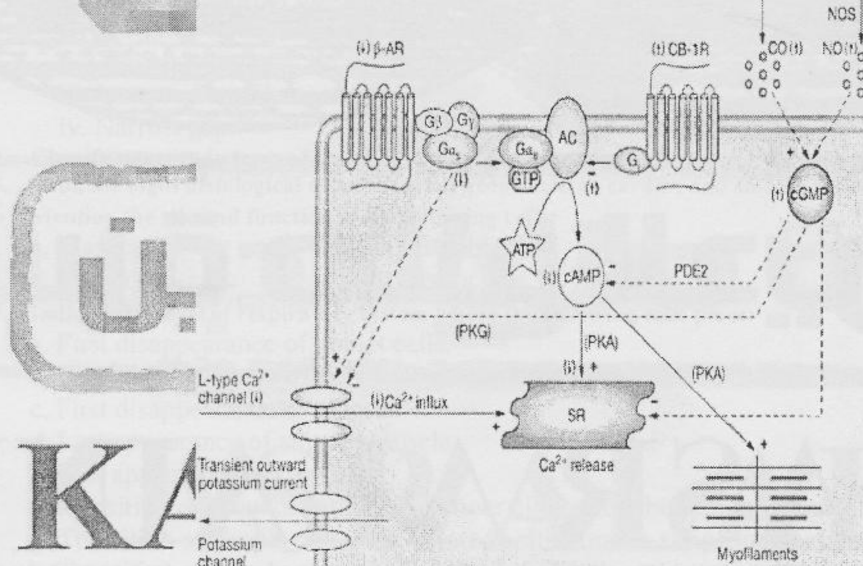
سنريهم اياتنا في الآفاق وفي أنفسهم حتى يتبين

Eldeen

لهم أنه الحق"

Club

صدق الله العظيم



KA NY

CAIRO UNIVERSITY - FACULTY OF MEDICIN

Biophysics

1. State Laplace law and explain its significance and describe 2 examples for its operation in the body (99,2003,2004,2007, MAY 2008)
2. Discuss donnan effect. (99,2003)
3. What is Reynolds formula? Explain its significance. ( )
4. Write what you know about definition and principles of ultrasound? Discuss Doppler principle and its application in clinical diagnosis & the advantages of clinical Doppler use.(2006)
5. what does starling law state? Discuss its application in cardiac muscle. (98)
6. define osmosis and explain its importance in cell membrane transport. (98)
7. define compliance and discuss the compliance of the lungs and chest wall and factors affecting pulmonary compliance. (2002)
8. State the Poiseuille - Hagen formula for flow in blood vessels. Explain why the radius of a vessel is important determinant of flow.(MAY 2008)
9. Describe the Starling forces that determine the net movement of fluid across the capillary wall Mention causes of oedema (MAY2008,May2009)
10. Describe the relationship between flow, pressure and resistance in the vascular system. Mention the factors that affect total peripheral resistance. (MAY 2008)
11. what is meant by compliance of the lung ,explain its diagram and factors affecting it .(2010)
12. physiological phenomena explained by law of LAPLACE (2011)
13. starling law (length-tension relationship) and its application in skeletal muscle.(2012) (SEPTEMPER 2014)
14. Explain what is meant by mean systemic filling pressure.(MAY 2014)

Introduction and autonomic

1. give an account on the structure of the cell membrane. How can this structure contribute to the mechanisms of support? (92)
2. define osmosis and explain its importance in cell membrane transport. (99)
3. write what you know about functions of cell membrane proteins. (97)
4. mention all what you know about facilitated diffusion. (97)
5. give a full account on the effect of stimulation of the greater splanchnic nerve. (93&98)
6. give an innervation & functions of autonomic nervous system on abdominal & pelvic. (94&98&99,2007, MAY 2008,2009)
7. Mention the types and functions of autonomic ganglia. Determine the type of receptors in autonomic ganglia.(2005)

8. describe the distribution and functions of pre-ganglionic starting from the lateral horn cells of lower 6 thoracic and upper 3 lumbar segments. (90)
9. give an account on origin and functions pelvic autonomic nervous system. (97)
10. give an account on the distribution of the pre-ganglionic in cranial nerves. (91)

احذر الصغائر

لا تنظر الى صغر معصيتك ولكن تنظر الى عظمت من عصيت وتذكر ان كبير النار من صغار الشرر وان النبي ﷺ قال عنهن انهن يجتمعن على الانسان حتى يهلكنه.

11. describe the origin and functions of the parasympathetic out flow to the head and neck how can these functions be blocked. (2001)
12. describe parasympathetic supply to the head and mention their functions. (96)
13. describe the origin and functions of the parasympathetic outflow to the head and neck. How can these functions be blocked?(2003)
14. what are the sites of secretion of acetyl choline in autonomic nervous system? Give an account on its functions on pelvic viscera? (95)
15. describe the sites of release of noradrenaline in the autonomic nervous system and its ways of removal. Explain the actions of adrenergic receptors.(2003,2004)
16. Describe the origin, course, distribution and functions of autonomic supply to the eye.(Aug 2008)
17. what are the chemical transmitters of autonomic nervous system? Describe their sites of release and their mode of innervation. (2000)
18. describe synthesis, site of release and removal of acetyl choline. (98&99)
19. enumerate the types of receptors present in the autonomic nervous system .how can each be blocked. (92)
20. enumerate types and functions of post-ganglionic sympathetic receptors .how can each receptors be stimulated and blocked.(98)
21. give an account on the adrenal medullae .mention the difference between adrenaline and noradrenaline. (97)
22. what are the type and action of adrenergic receptors? Explain their mechanism of actions. (2002)
23. - functions of autonomic nerves supply to head and neck .(2011)
24. - sites of cholinergic fibers explaining types, site and stimulation of cholinergic receptors .(2012)
25. discuss the pelvic autonomic nerves (origin – relay - function) (2013)
26. Give an account on the function and types of autonomic gangalia and state the ganglia stimulant and blocker drugs.(MAY2014)

27.Compare between sympathetic and parasympathetic nerve fibers supplying the pelvic viscera. (2014)

NERVE & MUSCLE

1. define the resting membrane potential and discuss its causes. (95)
2. draw and describe the action potential of the nerve and its ionic basis. (99)
3. explain the means by which the action potentials are propagated along the nerve fibers. (2000)
4. describe factors affecting nerve excitability. (98&99& Aug 2008)
5. give an account on the membrane channels for ions and their role at rest and after excitation of the nerve.
6. Explain the role of voltage-gated ion channels in nerve action potential, local response and nerve accommodation.(2003)
7. Discuss the factors that permit gradation of skeletal muscle responses in a living intact animal (Aug 2008)

دعاء

اللهم ان كانت ذنوبنا عظيمة فعفوك يا اله الكون منها اعظم

8. Define nerve accommodation and explain its ionic basis. Explain the factors affecting nerve excitability.(2004)
9. effect of frequent stimulation on muscle contraction(2006)
10. discuss the effects if a sub-threshold electric stimulus supplied to a nerve. (90)
11. with a labeled diagram showing the phases of action potential in a nerve fiber. Discuss its ionic basis. (98)
12. enumerate sequence of events during neuromuscular transmission and explain types of contraction in skeletal muscles. (99)
13. discuss neuromuscular transmission and its properties. (99)
14. describe neuromuscular transmission and factors affecting it. (98)
15. explain the importance of the tubular system of the skeletal muscles and describe the molecular mechanism of skeletal muscle contraction. (2001)
16. discuss the mechanism of neuromuscular transmission. What are its properties? (93&94 &May, 2009)
17. List the sequence of events leading from an action potential in the motor nerve to a contraction of a skeletal muscle.(2007)
18. explain the sequence events during neuromuscular transmission. (96)

19. describe the sources of ca+2 in the smooth muscles and explain its role in smooth muscle functions. (2000)
20. explain the role of Na+-k+ pump in nerve function. Discuss the excitation-contraction coupling of smooth muscle function "molecular mechanism of contraction". (2002,2003,2005,2006)
21. give an account on the molecular theory of muscle contraction. What are the sources of energy for this contraction? (92)
22. discuss metabolic changes in skeletal muscle during and after the end of muscular exercise. (98)
23. Describe the excitation – contraction coupling of skeletal muscle fibers (2013)
24. mention:
    a) nernest equation. Apply this equation to calculate the equilibrium potential for k+.
    b) the relationship between the strength and duration of the stimulus as shown by the related curve.
25. state nernest equation. How can it be used to calculate the equilibrium potential for Na and K+ in resting nerve? (2001)
26. - Describe the role of voltage gated ion channels in the aetiology of stages of action potential of nerve. (2010)
27. - compare and contrast between molecular events that initiate contraction in skeletal and smooth muscle. (2010)
28. mechanism of neuromuscular transmission .(2011)
29. sources of ca+2 and excitation-contraction coupling in smooth muscle .(2012)
30. Describe the excitability changes during nerve stimulation. Discuss the factors affecting nerve excitability.(MAY 2104)
31. Describe with the help of drawing the different phases of the non action potential explaining its ionic basis. (2014)



BLOOD

1. give an account on types and functions of the plasma proteins. (91&94&97)
2. discuss the importance, absorption and effect of defect of diet iron. (90)
3. mention the sites of erythropoiesis and factors affecting. (97)
4. discuss the maturation factors affecting erythropoiesis, discuss role of Vitamin B12 and iron in detail (90, August, 2009)
5. Describe the structure and function of the platelets and explain their role in hemostasis. (Aug 2008)
6. give an account on the substances secreted by the vascular endothelium.(2003)
7. Explain factors that affect blood flow in the blood vessels. (August, 2009)
8. Explain the platelet adhesion, activation & aggregation reactions(2005)
9. platelet release reaction.(2006)
10. discuss the platelet functions in hemostasis. (93,98,99)
11. what are the various physiological mechanisms of limitation of blood coagulation? (90)
12. List the vitamins needed for haemopoiesis. Explain their importance and the effects produced by their deficiency.(MAY 2008)
13. Summarize the mechanism of blood coagulation when a blood vessel is injured (May 2009)
14. describe the intrinsic system of blood clotting and explain the interaction between the intrinsic and extrinsic pathways for blood clotting.(2003)
15. describe the fibrinogen group of blood clotting factors and explain the conditions that cause excessive bleeding.(2003)
16. draw & give an account on the intrinsic pathway for thrombin formation. What is the various action of thrombin? (92/2000/2006)
17. Give an account on the specific limiting reactions of blood coagulation.
18. what is opsonisation? Discuss the function of B-lymphocytes. (2002)
19. what are various physiological mechanisms of limitation of blood clotting? (99)
20. discuss types, functions and mechanism of activation of T-lymphocytes in response to antigen. (2001)
21. discuss antigen recognition and presentation. Explain mechanism of activation, types of T-lymphocytes.(2004)
22. describe the effects of an antigen coming in contact of lymphocyte for the first time. (91)
23. describe the development of and functions of cellular immunity. (98)
24. describe types of antibodies and discuss their functions. (99)
25. discuss blood groups and effects of incompatible blood transfusion. (98/99)
26. discuss RH incompatibility and how to avoid it. (96)

27.- describe structure and functions of blood platelets and explain their role in hemostasis (2010)
28.- mechanism of iron absorption and storage .(2011)
29.Give an account on the 3 groups of coagulation factors and describe the intrinsic pathway of coagulation (2013)
30.platelet release and aggregation functions .(2012)
31.Enumerate factors affecting erythropoiesis. Discuss erythropoietin hormone (sources-mechanism of action-stimulation of its secretion. (MAY2014).
32.Discuss the general and specific anti-clotting limiting reaction.(2014)

RESPIRATION

1. what are the causes of -ve intrapleural pressure? (94)
2. causes of –ve intrapleural pressure and its changes during the respiratory cycle. (97)
3. discuss the causes and the effects of the recoil tendency of the lungs. (90)
4. write short notes on each of the following:
   a. cyanosis b. Intrapleural pressure c. dyspnea
5. define surfactant. discuss its functions and causes of causes of its deficiency. (99)
6. give an account of the structure and mechanism of action of pulmonary surfactant. When are they not functioning and what is the effect of their absence. (92)
7. what is the relation between timed visual capacity (FEV1) and vital capacity? (95)
8. discuss the dead space: its types, significance and methods of measurement. (98)
9. describe the regional differences in ventilation and perfusion at different levels of lung and explain its causes. (2000)
10. what is meant by alveolar ventilation perfusion ratio? Discuss the causes of its regional differences along the lungs. Explain why O2 lack is weaker stimulus for respiration than Co2 excess.(2003)
11. Describe and explain the ventilatory response to increased C02· concentration in the inspired air .(MAY 2008)
12. discuss the physiological significance of the O2 dissociation curve and factors affecting it. (98)
13. discuss O2 carriage in the blood. Draw and describe the O2 dissociation curve. (99)
14. explain how tidal CO2 can be buffered. (96)
15. define tidal CO2 and describe how it can be transported by blood. (99,2005)
16. explain the chloride phenomenon? (94/97)
17. Define ventilation/perfusion (VA/Q) ratio and describe the distribution, of blood through the lungs and upright subject. Explain how does this distribution affect the (VA/Q) (May, 2009)
18. describe the pontine respiratory centers and their role in regulation of respiration. (98)

19. mention the name of the medullary centers that regulate respiration. Explain briefly regulation by this center.
20. describe the respiratory centers with special references to how they control normal respiration(99)
21. explain the role of afferents from respiratory mechanoreceptors in regulation of respiration. (2001)
22. describe the genesis of rhythmic breathing and explain the role of afferents from receptors in the respiratory system in regulation of respiration (2004) describe the respiratory centers. Explain the role of afferents from the lungs in the regulation of respiration(2003)

قصة الخليفة الحكيم

كان عمر بن عبدالعزيز معروفا بالحكمة والرفق ، وفي يوم من الايام دخل عليه احد ابنائه ، وقال يا أبت ! لماذا تتساهل في بعض الامور ؟! فوالله لو اني مكانك ماخشيت في الحق احدا.

فقال الخليفة: لاتعجل يابني؛فان الله ذم الخمر في القرآن مرتين ، وحرمها في الثالثة، وانا اخاف ان احمل الناس على الحق جملة فيدفعوه فتكون فتنة.

فانصرف الابن راضيا بعد ان اطمأن لحسن سياسة ابيه وعلم ان رفق ابيه ليس عن ضعف ،انما عن حسن فهمه لدينه.

23. give an account on the respiratory chemoreceptors and their role in regulation of respiration. (2002)
24. mention the name of the medullar centers that:
a) regulate ABR
b) regulate respiration

explain briefly either regulation of ABR or respiration by related centers you mention

25. give an account on types, sites, innervation, mechanisms and effects of stimulation of chemoreceptors. (90/99/2006)
26. give an account on the non-chemical control of respiration. (91)
27. what is hypoxia? Enumerate its types and discuss hypoxic hypoxia. (93)
28. Define hypoxia, explain the causes which make oxygen lake a weaker stimulus than carbon dioxide excess.(2005)
29. Explain chloride shift Phenomenon(Aug 2009)
30. enumerate types of hypoxia. Give full account on hypoxic hypoxia(characters, symptoms and causes) (95)
31. discuss hypoxia and histo-toxic hypoxia. (96)
32. enumerate types of hypoxia. Give a short account on the type that shift of oxygen dissociation curve to left (provided with illustration). (97)
33. enumerate types of hypoxia. Give a full account on each. (98)

34. discuss the various body responses to chronic hypoxia. (2000)
35. define cyanosis, with help of diagrams. Explain why cyanosis may be present in some hypoxia and absent in others.
36. discuss the ventilatory response to different H+ ions concentration in blood and what is mechanism of action of H+ ions. (93)
37. Describe the compensatory mechanisms that occur during acclimatization to high altitude.(2007)
38. Describe the genesis of rhythmic breathing (May, 2009)
39. List the specific respiratory functions of the vagus nerves and describe their role in the regulation of respiration. (Aug 2008)
40. - explain in details the ventilator responses to both increase carbon dioxide concentration in inspired air as well as changes in acid base balance.(2010)
41. chloride shift phenomena.(2011)
42. - cyanosis .(2011)
43. - structure, cells secreting and functions of surfactant .(2012)
44. Mention role of O2 in regulation of respiration and explain why it is a weaker stimulus than CO2 (2013)
45. Explain the chloride shift phenomenon.(MAY2014)
46. What are the causes and function of negative intra pleural pressure .Explain its changes during the respiratory cycle. (2014)



CIRCULATION

1. - draw the action potential of a single ventricular muscle fiber. Discuss the ionic basis of its different phases.
2. mention the characteristics and ionic basis of the action potential of ventricular muscle fiber. Provide an illustration to show the relation between phases of this action of normal ECG record.
3. describe initiation and propagation of cardiac impulse through the heart. (98/99)

4. discuss the various factors, which affect cardiac contractility. (91)
5. discuss the inotropic state of the cardiac muscle, and describe the various factors affecting its level on cardiac function curves& Explain the physiological importance. (2001,2007)
6. how does the heart perform work? Explain the effects of changes in the cardiac work on its mechanical efficiency. (91)
7. Draw the cardiac pace-maker potential, explain its ionic basis.(2005)
8. with the help of diagram describe the force-velocity relationship in the cardiac muscles and give an account on the factors affecting the cardiac inotropic state. (2004)
9. describe with help of diagram the changes in the transmembrane potential of the contractile cardiac muscle as a result of its excitation. what are the ionic bases of these changes. (90)
10. Describe ionic basis of ventricular action potential(Aug 2009)
11. Describe the cardiac responses to exercise.(MAY 2008)
12. compare the effects of changes on the heart rate between the cardiac output in both innervated and denervated hearts. (90)
13. biophysics: explain the relationship between the resistance and blood flow. (90)
14. with help of diagrams give an account on:
    a) force-velocity and frequency-force relationship in myocardial contraction. (92/2000)
    b) The changes in atrial and ventricular pressure and ventricular volume during the systole of the left ventricle. (92/2000)
    c) The normal arterial pulse wave. what are the pathological changes which affect its form.
15. what does starling law state? With help of diagrams apply this law to both cardiac and skeletal muscles contraction. (97/98)
16. discuss events occurring in both isometric contraction and isometric relaxation phases in the cardiac cycle. (98)
17. with the help of diagrams give an account on changes that occur during isometric contraction phase of cardiac cycle. (95)
18. draw a diagram to show the different changes that occur during cardiac cycle during ventricular systole. Discuss the isometric contraction only. (94)

compare and contrast isometric and isotonic contraction. Mention in which phase of the cardiac cycle the heart contracts isometrically and that where the heart contract isotonically.

سكينة القرآن

عن البراء بن عازب قال كان رجل يقرأ سورة الكهف وإلى جانبه حصان مربوط بشطنين فتغشته سحابة فجعلت تدنو وتدنو وجعل فرسه ينفر فلما أصبح أتى النبي ﷺ فذكر ذلك له فقال تلك السكينة تنزلت بالقرآن

(97)

19. with the help of diagram describe the sequence of events in cardiac cycle during late diastole. (93)
20. what is meant by cardiac efficiency? Explain the factors that affect it. (2002)
21. describe normal ECG and its component with special reference to its significance. (99)
22. draw labeled diagram of the normal ECG. Mention the cause of each wave and its timing in the cardiac cycle. (96)
23. give an account on intervals recorded in normal ECG and explain their importance in ECG abnormalities. (2001)
24. Mention & explain the applications of electrocardiography of the heart.(2005)
25. define cardiac output. Discuss its control and regulation in brief. (97)
26. draw cardiac output curves. Explain the relation between right atrial pressure and C.O under different conditions. (98)
27. draw the cardiac output curve and explain the factors affecting it.(2003,Aug2008)
28. draw & explain the strength duration curve.(2005)
29. give an account on the functions of the medullary pressure area. what are the factors which increase its activity. (91)
30. Compare the effect of changing preload and afterload on cardiac muscle performan (on muscle shortening and velocity of shortening) (2013)
31. Discuss hemorrhagic shock (manifestation – rapid compensatory mechanism (2013)
32. State law of Laplace and describe its applications in the cardiovascular system. (201
33. explain the slow mechanisms for regulation of arterial blood pressure(2004)
34. what are the roles of circulating vasoconstrictor substances in regulation of the diamete of arterioles (and blood pressure)? (94)
35. what are the effects of decreased renal blood flow on arterial blood pressure? (93)
36. describe the role of baro-receptors in regulation of arterial blood pressure. (96/98)
37. give an account on the mechanisms of auto-regulation of the diameter of arterioles. (90/99)
38. discuss nervous control of the diameter of arterioles. (99)
39. discuss the role of atrial receptors and arterial baro-receptors in regulation of arterial blood pressure. (2001,2003)
40. discuss the characteristics of the sinoatrial node potential. Explain the factors the affec the slope of prepotential.(2003)
41. Explain the renal-body fluid mechanism for control of arterial blood pressure.(2007)
42. what are the causes of difference between pO2 arterial blood and alveolar air? (2002)

دنيا المؤمن

عن عبد الله بن عمر رضي الله عنهما قال: أخذ رسول الله ﷺ بمنكبي فقال "كن في الدنيا كأنك غريب أو عابر سبيل"

43. Compare the coronary blood flow in the left ventricle with that of the right ventricle during the cardiac cycle. Summarize the factors that regulate coronary vascular resistance.(MAY 2008)
44. what are the vaso-active substances regulating the diameter of arterioles. Discuss their functions. (2000)
45. discuss factors affecting filtration across the capillary wall. How do they act to regulate the blood pressure (intermediate mechanism)? (95)
46. what is meant by vasomotion of capillaries? Discuss the bulk flow (filtration) across the capillary wall and causes of its variation.(2003)
47. discuss mechanism of bulk flow across capillary. (98)
48. give an account on the mechanism of exchange of water, electrolyte and crystalloids through the capillary wall (bulk flow). What are the variations which affects the net exchange of fluids? (91)
49. give an account on the effect of gravity on the venous system. (93)
50. with help of diagram describe the jugular venous pulse and explain its significance. (99)
51. what are the factors that regulate the coronary blood flow? (96/98/99/2003)
52. what is meant by the hydrostatic indifferent point? Describe the effects of orthostasis on the venous return against gravity.(2004)
53. Summarize the factors that help in venous return against gravity(Aug 2008)
54. define ejection fraction and mention its clinical significance. With the help of diagram, describe the venous return curve and the factors affecting it. (2002)
55. describe the rapid compensatory reaction by the body to hypovolemic shock. (2002)
56. Define edema, explain its causes.(2005)
57. draw the venous return curve &explain the effect of the right atrial pressure on venous return. (2006).
58. concerning the comparison between the pulmonary & systemic circulations tabulate the following differences (2006)
    - pulmonary artery and aorta pressures.
    - pressure at the beginning of pulmonary and systemic capillaries.
    - pressure at the end of pulmonary and systemic capillaries.
    - net driving pressure across pulmonary & systemic circulations.
59. - explain pacemaker currents and its autocontrol .(2010)
60. describe the phenomena of autoregulation of diameter of arterioles.(2010)
61. - pressure volume curve of the left ventricle .(2011)
62. - pacemaker currents .(2011)
63. - regulation of coronary blood flow. (2011)
64. strength duration curve .(2011)
65. - the changes in both the atrial and ventricular pressure and ventricular volume during left ventricular systole .(2012)



66.the effect of decreased renal blood flow on arterial blood pressure .(2012)

67.Discuss the different changes that occur in cardiac cycle during ventricular ejection.(MAY2014)

68.Describe the venous return curve showing the effect of changes in MSFP (MAY2014)

69.Discuss the excitation contraction coupling of the cardiac muscle.(2014)

70.Discuss the renal –body fluid mechanism in regulation of arterial blood pressure. (2014)



FINALEXAM

MAY99

1. a) write what you know about definition and principles of ultrasound? Discuss Doppler principle and its application in clinical diagnosis.
   b) define compliance, elastance, distensibility and plasticity. Discuss compliance of the urinary bladder.
2. give an account on only 1 of the 2 following questions (N&M)
   a) draw and describe the action potential of the nerves and its ionic basis.
   b) discuss the neuro-muscular transmission and its properties.
3. answer only 2 of the following 3 questions (Auto and blood)
   a) discuss functions of blood platelet.
   b) discuss sympathetic innervation and functions on abdominal and pelvic organs.
   c) discuss blood groups and effects of incompatible blood transfusion.
4. answer 2 of the following 3 questions (CIR):
   a) describe the normal ECG and its components with special reference to its significance



b) discuss nervous control of the diameter of arterioles.

c) discuss factors affecting coronary blood flow.

5. answer only 2 of the following 3 questions:

a) discuss O2 carriage in the blood. Draw and describe the O2 dissociation curve.

b) describe the respiratory centers with special reference to how they control normal respiration.

c) write short notes on each of the following:

1) intramural pressure 2) dyspnea 3) cyanosis

MAY 2000

Answer the following questions:

1) what are the chemical transmitters of the autonomic nervous system? Describe their sites of release and their mode of inactivation.

2) A) explain the means by which the action potentials are propagated along nerve fibers.

b) describe the sources of Ca+2 in smooth muscles and explain its role in smooth muscle functions.

3) describe the intrinsic pathway for blood clot formation and explain the various actions of thrombin.

4) a) describe the regional differences in ventilation and perfusion at different levels of the lungs and explain its causes.

b) discuss the various body responses to chronic hypoxia.

5) a) explain with the help of diagram the role of force-velocity and frequency-force relationship in the control of myocardial contractility.

b) describe the intra-atrial, intra-ventricular and intra-aortic pressure changes and ventricular volume changes during the ejection of blood from the ventricles.

6) a) what are the vaso-active substances regulating the diameters of the arterioles? Explain their functions.

b) what is Reynolds formula? Explain its significance.

لا تبع جنتك "كيف يكون عاقلا من باع الجنة بما فيها بشهوة ساعة؟"............ ابن القيم

MAY 2001

Answer the following questions:

1) describe the origins and functions of the parasympathetic outflow to the head and neck. How can these functions be blocked.
2) Explain the importance of the tubular system of skeletal muscles and describe the mo[lecular] mechanism of skeletal muscle contraction.
3) A) discuss types, functions and mechanism of activation of T-lymphocytes in response to antigen.

   b) state nernest equation. How can it be used to calculate the equilibrium potential for Na+ and K+ in the resting nerve?
4) a) explain the role of afferents from the respiratory mechano-receptors in regulation of respiration.

   b) describe the role of atrial receptors and arterial baro-receptors in regulation of arteri[al] blood pressure.
5) a) define the inotropic state of the cardiac muscle, and describe the various factors affecting its level on the cardiac function curves.

   b) give an account on intervals recorded in normal ECG and explain their importance [in] ECG abnormalities.

MAY 2002

Answer the following questions:

1) what are the types and actions of adrenergic receptor? Explain their mechanism of actions.
2) Explain the role of Na+-K+ pump in nerve function. Discuss the excitation contraction coupling of smooth muscle.
3) A) what is opsonisation? Discuss the function of B-lymphocytes.

   B) biophysics: define compliance and discuss the compliance of the lungs and chest wall and factors affecting pulmonary compliance.

4) a) what are the causes for the difference between pO2 in arterial blood and alveolar air? Give an account on the respiratory chemo-receptors and their role in regulation of respiration.

b) discuss the rapid compensatory reaction by the body to hypovolemic shock.

5) a) define ejection and mention its clinical significance. With the help of diagram, describ the venous return curve and factors affecting it.

b) what is meant by cardiac efficiency? Explain the factors that affect it.

لوكان ما تريد غير الجنة لأجبت

حدثت قرعة بين سعد بن خيثمة وبين أبيه قبيل غزوة بدر فأصابت القرعة الابن ،فطلب منه ابوه ان يتنازل له ، فقال له ولده :"يا أبتاه ! لو كان ما تريد غير الجنة لاجبت " ثم استشهد سعد في المعركة. وفي السنة اللاحقة حدثت غزوة أحد ، فأسرع خيثمة بالذهاب الى رسول الله ﷺ قائلا :"لقد رأيت ابني البارحة في المنام في احسن صورة ينعم في الجنة ويقول : " لقد وجدت يا أبي ما وعدني ربي حقا ، فالحق بنا ترافقنا في الجنة " ، وقد أصبحت يا رسول الله مشتاقا الى مرافقة ولدي ولقاء ربي ، فادع الله ان يرزقني الشهادة ؟!

فدعا له رسول الله ﷺ ثم دخل المعركة فاستشهد في احد.

MAY 2003

Answer the following questions:

1) describe the origin and functions of the parasympathetic outflow to the head and neck. How can these functions be blocked?
2) Explain the role of voltage-gated ion channels in nerve action potential, local response and nerve accommodation.
3) A) describe the intrinsic system of blood clotting and explain the interaction between the intrinsic and extrinsic pathways for blood clotting.
   b) biophysics: explain Gibbs-Donnan equilibrium
4) what is meant by alveolar ventilation perfusion ratio? Discuss the causes of its regional differences along the lungs. Explain why O2 lack is weaker stimulus for respiration than Co2 excess.
5) A) discuss the role of atrial receptors in the regulation of arterial blood pressure.
   b) discuss the regulation of coronary blood flow.
6) draw the cardiac output curve and explain the factors affecting it.

SEPT. 2003

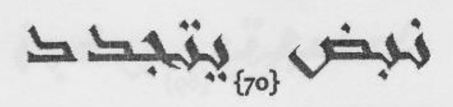
Answer the following questions:

1) describe the sites of release of noradrenaline in the autonomic nervous system and its ways of removal. Explain the actions of adrenergic receptors.
2) Explain the excitation contraction coupling in smooth muscles.
3) A) describe the fibrinogen group of blood clotting factors and explain the conditions that cause excessive bleeding.
   b) biophysics: state the law of Laplace and discuss its physiological significance.
4) describe the respiratory centers. Explain the role of afferents from the lungs in the regulation of respiration
5) discuss the characteristics of the sinoatrial node potential. Explain the factors the affect the slope of prepotential.
6) a) what is meant by vasomotion of capillaries? Discuss the bulk flow (filtration) across the capillary wall and causes of its variation.
   b) give an account on the substances secreted by the vascular endothelium.

MAY 2004

Answer the following questions:

1) describe sites of release and way of removal of noradrenaline. What are the functions of adrenergic receptors?
2) Define nerve accommodation and explain its ionic basis. Explain the factors affecting nerve excitability.
3) A) discuss antigen recognition and presentation. Explain mechanism of activation, types of T-lymphocytes.
   b) biophysics: state the Laplace law and discuss its physiological applications.
4) a) describe the genesis of rhythmic breathing and explain the role of afferents from receptors in the respiratory system in regulation of respiration.
   b) explain the slow mechanisms for regulation of arterial blood pressure.
5) a) with the help of diagram describe the force-velocity relationship in the cardiac muscles and give an account on the factors affecting the cardiac inotropic state.
   b) what is meant by the hydrostatic indifferent point? Describe the effects of orthostasis on the venous return against gravity.



MAY2005

Answer the following question: total 50 marks

Illustrate your answers whenever possible with diagrams

1) draw & explain the strength duration curve.
2) Explain the excitation-contraction coupling of skeletal muscle.
3) Mention the types and functions of autonomic ganglia. Determine the type of receptors in autonomic ganglia.
4) Explain the platelet adhesion, activation & aggregation reactions
5) Draw the cardiac pace-maker potential, explain its ionic basis.
6) Define edema, explain its causes.
7) Define tidal CO_2; explain its carriage in the form of bicarbonate.
8) Define hypoxia; explain the causes which make oxygen lake a weaker stimulus than carbon dioxide excess.
9) Mention & explain the applications of electrocardiography of the heart.

JUNE 2006

Write a full account on the following:

1. biophysics:
   -what are the typical clinical applications for Doppler
   -what are the advantages of clinical Doppler use.
2. concerning skeletal muscle
   -molecular mechanism of contraction (excitation contraction coupling)
   -effect of frequent stimulation on muscle contraction
3. concerning hemostasis.
   -draw the intrinsic system of blood clotting.
   -platelet release reaction.



4. concerning regulation of respiration by peripheral chemo-receptors.
   -what are sites of receptors?
   -innervation of receptors.
   -mechanism of stimulation by changes of O_2 tension.
5. concerning the effect of venous return on cardiac output
   -draw the venous return curve.
   -explain the effect of the right atrial pressure on venous return.

6. concerning the comparison between the pulmonary & systemic circulations tabulate the following differences

-pulmonary artery and aorta pressures.

-pressure at the beginning of pulmonary and systemic capillaries.

-pressure at the end of pulmonary and systemic capillaries.

-net driving pressure across pulmonary & systemic circulations.

قال ﷺ : "من غدا الى المسجد او راح اعد الله له نزلا في الجنة كلما غدا او راح"

June 2007

Answer all of the following questions:

1) mention the function of autonomic supply to the abdomen.
2) Give an account on the specific limiting reactions of blood coagulation.
3) List the sequence of events leading from an action potential in the motor nerve to contraction of a skeletal muscle.
4) Explain the renal-body fluid mechanism for control of arterial blood pressure.
5) List the factors that affect the level of inotropic state of the heart. Explain the physiological importance.
6) Describe the compensatory mechanisms that occur during acclimatization to high altitude.
7) Biophysics: define the law of Laplace and describe 2 examples of its operation in the body.

MAY 2008

Answer all the following questions:

1) Describe and explain the ventilatory response to increased CO_2 concentration in the inspired air. (10 marks)

2) List the vitamins needed for haemopoiesis. Explain their importance and the effects produced by their deficiency. (10marks)

3) Describe the origin, distribution and functions of autoimmune supply to the pelvic organs. (10 marks)

4) Describe the cardiac responses to exercise. (7 marks)

5) Compare the coronary blood flow in the left ventricle with that of the right ventricle during the cardiac cycle. Summarize the factors that regulate coronary vascular resistance. (8 marks)

6) Biophysics:

State the Poiseuille - Hagen formula for flow in blood vessels. Explain why the radius of a vessel is important determinant of flow. (5 marks)

August 2008

Answer all the following questions:

1. Describe the origin, course, distribution and functions of autonomic supply to the eye. (5 marks)
2)List the specific respiratory functions of the vagus nerves and describe their role in the regulation of respiration. (10 marks)
3)Describe the structure and function of the platelets and explain their role in hemostasis. (8 marks)
4) Summarize the factors that help in venous return against gravity (5 marks)
5) List factors that influence the cardiac output and explain the effect of each. (10marks)
6)a- Discuss the factors that permit gradation of skeletal muscle responses in a living intact animal (2 marks)
b. Explain the factors that affect excitability of the nerve. (5marks)
7) Biophysics:
- Describe the Starling forces that determine the net movement of fluid across the capillary wall Mention causes of oedema(5marks)

May, 2009

Answer the following questions:

1) Describe the starling forces that determine the net movement of fluid across the capillary wall. summarize causes of edema. (10 marks)
2) Describe the genesis of rhythmic breathing (7 marks)
3) Define ventilation/perfusion (VA/Q) ratio and describe the distribution, of blood through the lungs and upright subject. Explain how this distribution affects the (VA/Q) (8 marks)
4) Describe the mechanism and properties of neuromuscular transmission (10 marks)
5) Summarize the mechanism of blood coagulation when a blood vessel is injured. (10marks)
6) Biophysics:

Describe the relationship between flow, pressure and resistance in the vascular system. Mention the factors that affect total peripheral resistance. (5 marks)

August, 2009

Answer all the following questions:

1. Enumerate factors affect erythropoiesis, discuss role of Vitamin B12 and iron in detail. (8 marks)
2. Discuss functions of the vagus nerve in abdomen (8 marks)
3. Explain chloride shift Phenomenon (10 marks)
4. Describe ionic basis of ventricular action potential (10 marks)
5. Explain factors that affect blood flow in the blood vessels (8marks)
6. Explain law of Laplace; Give two examples for its operation in the body. (6 mark)

May, 2010

1. Describe the role of voltage gated ion channels in the etiology of stages of action potential of nerve.
2. Compare and contrast between molecular events that initiate contraction in skeletal and smooth muscles.
3. Describe structure and functions of blood platelets and explain their role in Hemostasis.
4. Explain pacemaker currents and their auto control.
5. Describe the phenomena of auto regulation of diameter of arterioles.
6. Explain in details the ventilatory responses to both increased carbon dioxide concentration in the inspired air as well as changes in acid base balance.
7. (Biophysics) What is meant by compliance of the lung, explain its diagram and factors affecting it?

May, 2011

Give short account on each of the following items:

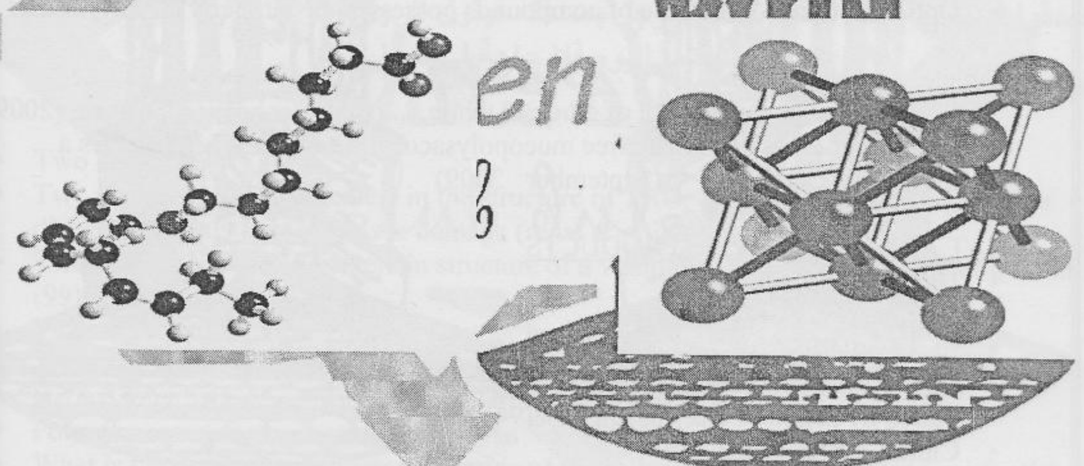
1. Pressure volume curve of the left ventricle.
2. Pacemaker currents.
3. Regulation of coronary blood flow.
4. Chloride shift phenomena.
5. Cyanosis.
6. Functions of autonomic nerves supply to head and neck.
7. Mechanism of iron absorption and storage.
8. Strength duration curve.
9. Mechanism of neuromuscular transmission.

(Biophysics) Physiological phenomena explained by law of LAPLACE.



Biochemistry

Salah



"وأنزلنا الحديد فيه بأس شديد ومنافع للناس"
صدق الله العظيم

KASR ALAINY

CAIRO UNIVERSITY - FACULTY OF MEDICINE

نبض يتجدد

CARBOHYDRATE

WRITE THE CHEMICAL NATURE OF:

a) Heparin (92/2001)
b) Cellulose (90)
c) Inulin (92)
d) Zylulose (92/2001)
e) Erythrose (92)
f) Glycoside (99)
g) L-ribose (94)
h) Dermatan sulfate (92)

DEFINE

- Mutarotation(92/94/2012)
- Optical activity(92)
- Optical activity. What type of compounds possesses this property? (2001)

Complete

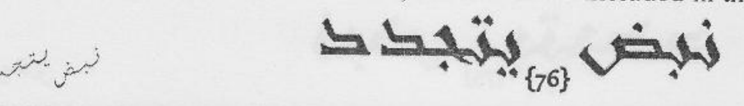
- ……………is the alcohol of glucose, while…. is the alcohol of galactose. (2009)
- …………….. is a sulphate free mucopolysaccharides while, …………Is a homopolysaccharide. (September 2009)

WHAT ARE HYDROLYSIS PRODUCTS

- Heparin(92/93/2002)
- Raffinose(92/93/95)
- Lactose(94/98)
- Chondroitin sulfate(93)
- Starch by action of enzyme amylase(94)
- Chitin(2001)
- Amylopectin(2001)
- Chondroitin sulfate(2001)
- Sucrose(92/2001/2002)
- Cellulose .(2002)
- Lactose. (2003)

ON BIOCHEMICAL BASIS EXPLAIN:

- Sucrose after hydrolysis by invertase enzyme is known as invert sugar. (95)
- Sucrose is non-reducing while lactose is reducing disaccharide. (90/91)
- Sucrose is non-reducing. (99)
- Sucrose is non-reducing, while maltose is reducing. (2001)
- Lactose is the most suitable sugar in milk. (90)
- Osazone test cannot differentiate between glucose & fructose. (90)
- Cellulose has no nutritive value, but should be included in the diet. (91)



- Optical activity of monosaccharide. (95)
- Heparin is an anticoagulant. (2003)
- Lactoferrin has an antibacterial effect. (2003)
- Glucose and galactose are epimers.(2003)
- Lactose is a reducing while sucrose is a non reducing disaccharide (August 2008)

MENTION
- Two GAGs compounds one non-sulfated, the contain galactose. (98)
- Two GAGs: one giving galactose and one giving L-iduronic acid. (99)

قال ﷺ :
تصدقوا فسيأتى عليكم زمان يمشي الرجل بصدقته فيقول الرجل : لو جئت بها بالامس لقبلتها منك فأما اليوم فلا حاجة لي فيها "

- Two deoxy sugars. (98)
- Two sugar alcohols: one enters in the structure of TAG. The other may accumulates in diabetes mellitus & cause tissue damage (renal & retinal) (98/99)
- Two sugar alcohols: one enters in structure of a vitamin & other enters in structure of fat. (99)
- Two disaccharides: one reducing & other non-reducing. (99)
- Three heteropolysaccharides. (97)
- Deoxy-sugar which is present in blood group antigens. (99)
- Four glucose monosaccharide derivatives (2007)
- What is the class of each monosaccharide of the following? Give its reduced product(s), (June 2008)
    - Fructose
    - Ribose
    - Glyceraldehyde

COMPARE BETWEEN
- Glycogen& amylopectin(93)
- Optical activity & metamerism(95)
- Heparin & heparin sulfate(99)
- Amylopectin and glycogen (September / 2009)
- Amylose and amylopectin (2014)
- Racemic mixture and meso compounds. (2014)

COMMENT ON
- GAGS(98)
- Glycosides(91)
- Mucopolysaccharides(90)

MENTION ONE FUNCTION OF:
- Glucuronic acid(98/99)
- Asymmetric carbon atom(99)
- Heparin (99)
- Dextrin(99)
- Mannitol(99)
- Digitalis(99)

WRITE THESE REACTIONS:
- Reaction due to carbonyl group of monosaccharide (94)
- Describe the steps of synthesis and maturation of collagen. (June 2008)

GIVE EXAMPLE OF:
- Mutarotation of a reducing sugar(99)
- Deoxy sugars (one in D form and one in L form). (2002)

Give an account:
- Sugar alcohols(mention three examples). (2005)
- Functions of GAGs (At least 5 functions are required) (2012)

WRITE THE STRUCTURAL FORMULA OF:
- Alpha-lactose.(2001)

- Sorbitol.(2001)
- Glucuronic acid.(2001)
- Reduction of glucose.(2002)
- Ribitol .(2003)
- Lactose operon (Lac operon) of E.coli. (2009)

DIAGRAMATICALLY SHOW

- Arabirosazone
- The structure of aggrecan monomer and polymer. (2002)

Enumerate three compounds containing each of the following:

- Choline
- Glucuronic acid
- Sphingosine
- Two GAGs containing uronic acid and mention one importance for each (2014)
- Give the structure of one of three compounds. (June 2008)



LIPIDS

WRITE THE CHEMICAL NATURE OF:

- Cardiolipin(92)
- cryptoxanthine(92)
- progesterone(92)
- cortisol(92/94)
- gangliosides(2001)
- estriol(2001)
- oleic acid(94)

WRITE THE STRUCTURAL FORMULA OF:

- Sulfolipids(2001)
- Testosterone(2001)
- Alpha-carotene(2001)
- Progesterone(2001)
- Lecithin(2001)
- Reduction of cholesterol. (2002)
- Vitamin D3. (2003)
- Cholesterol. (2003)

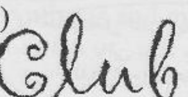


Complete

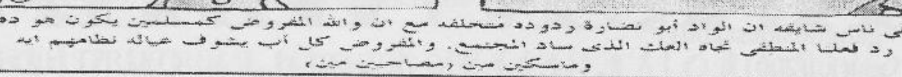
- …………is acyclic eicosanoid, while…………is cyclic. (2009)

DEFINE

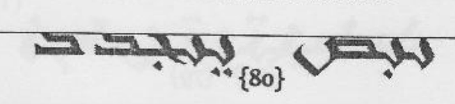
- Saponification value
- Saponification(97)
- Iodine number(97/92)
- Rancidity(94)
- Acid number(92)






في ناس شايفه ان الولاد أبو نضارة ردوده متخلفه مع ان والله المفروض كمسلمين يكون هو ده
رد فعلنا المنطقي تجاه العك الذي ساد المجتمع. والمفروض كل أب يشوف عياله نظامهم ايه
وماسكين مين (متصاحبين مين)

www.forislam.com



- Iodine number. Is it higher for butter or for maize oil, why? (2001)
- Rancidity

WHAT ARE HYDROLYSIS PRODUCTS

- Lipositol(92)
- Cerebron(92)
- Plasmalogens(92/93/2001)
- Sphinogomyelin(92/94)
- Cerebroside(95)
- Lecithin(98)
- Lanolin(2001)
- Cephalin(2001/2002)
- Cardiolipin(2001/2003)
- Ganglioside(98)
- Phospholipids by the action of phospholipase(94)
- hyaluronic acid .(2002)
- Phosphatidic acid. (September 2009)
- Ceramide (September 2009)

ON BIOCHEMICAL BASIS EXPLAIN

- Rancid of fats gives a bad odour& taste. (95)
- Iodine value of cotton-seed oil is higher than that of olive oil (92)
- Butter has a higher saponification value than margarine. (93)
- Oils are liquid, while fats are solid at room temperature. (2001)
- Phospholipids are hydrotropic(2001)
- Arachidonic acid may be formed in the body (2003)
- Phospholipids are important for blood clotting.(2003)
- Lung surfactant deficiency in premature neonates leads to respiratory distress syndrome (2007)
- Importance of Cholesterol in the cell membrane (2010)
- Organisms living in cold environment have higher proportion of unsaturated fatty acids in their cell membrane (2011)

Give an account

- Cell membrane asymmetry and fluidity. (2004,2006)
- Six examples for the importance and functions of phospholipids (2004,2005)
- Lipids of cell membrane and their functions. (August 2008)
- Function of phospholipid (five functions) (2014)

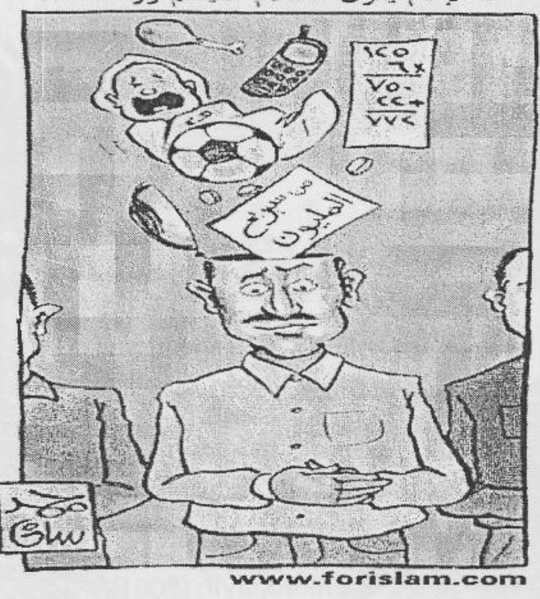
MENTION:

- Two essential fatty acids: one is w3, other is w6. (98)

- Two bile acids one is the main primary bile acid conjugate and the other is secondary bile acid. (98)
- Four glycerol containing phospholipids. (September 2009)
- Two steroid hormones one is the most potent mineralocorticoid & the other is the most potent estrogen(98)
- Two phospholipids: one contains no glycerol & the other contains non-nitrogenous base. (99)
- Steroid hormones: 3 corticoids & 2 sex hormones. (97)
- Primary bile acids. (2002)
- Choline containing phospholipids. (2002)
- The most potent corticoid(one glucocorticoid and one mineralocorticoid). (2002/2003)
- Two W6 PUFA.(2002)
- Two w3 PUFA.(2002/2003)
- Two sphingolipids and two eicosanoids (2007)
- Four sphingosine containing compounds. (2009)
- Four Functions of Cholesterol (2012)
- Four causes of cell membrane asymmetry.(2009)
- Two function of cholesterol. (2014)
- Two function of phospholipid. (2014)
- Two phospholipid containing glycerol. and Two phospholipid containing sphingosine.(2014)
- Two function of bile salts. (2014)



للأسف في ناس أول ما تبدأ الصلاة.. يفتحوا التلفزيون الخصوصي بتاعهم. ويقفلوه أول ما الإمام يقول السلام عليكم ورحمة الله!!



COMPARE BETWEEN
- lecithin & cephalins(98/99)
- fat & oil(99)

COMMENT ON:
- Cholesterol(90)
- 17-ketosteroid(93)
- prostaglandins(90)
- androgens(92/95)
- one lipid containing glycerol(91)
- estrogens(93)
- families of the unsaturated fatty acids(2001)
- lecithin, using its formula show how may it be hydrolyzed by enzymes (2001)
- estrogens(2001)

DRAW A LABELED DIAGRAM ILLUSTATING:
The structure of palmitoleic acid, showing the different ways of numbering carbon atoms and

the position of the double bonds. (2001)

MENTION ONE FUNCTION OF:

- 7-dehydrocholestrol(98)
- TXA2(99)
- arachidonic acid(99)
- cholesterol(99)
- aldosterone(99)
- bile stains(99)
- PGF-2a(99)

عن سعيد بن أبي هلال عن نعيم المجمر قال رقيت مع ابى هريرة على ظهر المسجد فتوضأ فقال إنى سمعت النبي صلى الله عليه وسلم يقول "إن أمتي يدعون يوم القيامة غرا محجلين من آثار الوضوء فمن استطاع من أن يطيل غرته فليفعل

PROTEINS

WRITE THE CHEMICAL NATURE OF:

1. Casinogen (90)
2. Arginine (2001)
3. Mucin (2001)
4. Cytochromes (2001)
5. chlorophyll. (2001)
6. Angiotensin II (2001)
7. Ceruloplasmin (2001)
8. myoglobin (90)

WRITE THE STRUCTURAL FORMULA OF:

- HEME(2001)
- Tryptophan(2001)
- Decarboxylation of aspartic acid. (2002)
- Oxidative deamination of glutamic acid. (2002)
- carotenase enzyme.(2002)
- a, D-glucuronic acid.(2003)
- phosphatidic acid. (2003)
- Immunoglobulins. (August 2008)

Complete

- sickle cell anemia is caused by replacement of the amino acid........at positiono of... chain of hemoglobin by the amino acids.................(2009)
- structural proteins of extracellular matrix include mainly.......... (2009)
- .... is an O linked glycoprotein while, ... Is a phospho-protein (September 2009)

- Hemoglobin C disease is caused by replacement of amino acid .... at position 6 of the β-chain of hemoglobin by amino acid .... (September 2009)
- .... is a branched chain essential amino acid while, ... is an aromatic essential amino acid. (September 2009)

DEFINE

- Denaturation. (98/2012)
- codon(98/2000)
- zwitterions(98/97)
- hapten(99)
- essential amino acids for man(94)
- base pairing
- the 2 strands of DNA run antiparallel
- primary structure of protein. What are the bonds holding this structure?(2009)
- Tertiary structure of protein (September 2009)
- Cell cycle. (September 2009)

ومن يكن العلياء همة نفسه .... فكل الذي يلقاه فيها محبب ..

ON BIOCHEMICAL BASIS EXPLAIN:

- In DNA proteins or enzymes can recognize the specific sequence of bases without distributing the double helix. (98/99)
- Some proteins are of high & other are of low value. (90)
- Proteins are denaturated by heat.(2003)
- Albumin shows the greater mobility in serum protein electrophoresis. (91)
- All alpha amino acids except glycine are optically active(92)
- In DNA, regions rich in C-G bonds are more resistant to denaturation than regions rich in A-T bonds. (98)
- RBCs having HbS may be sickle shaped. (98)
- Denaturation of proteins is associated with decreased solubility. (2001)
- Histidine is responsible for most of the buffering power of proteins at physiologic pH. (2001)
- HBF has a high affinity for oxygen than HBA. (2001)
- IgE mediates allergic reactions. (2001)
- Collagen has a firm and flexible structure.(2002)
- The dipeptide aspartate-serine is presented on the surface of the globular protein, whereas the dipeptide leucine-phenylalanine is oriented in its core. (2007)
- Proteins act as buffers.(2007)
- Pepsin-splitting immunoglobulins make precipitate with antigen but papain-splitting products cannot (2007)

- hydroxylation of proline and lysine rescues, and its importance. (June 2008)
- Globin part of hemoglobin is essential for hemoglobin function. (August 2008)
- Exposure of the cells to stress affects protein synthesis. (August 2008)
- Vitamin C deficiency leads to defective collaged synthesis (June 2010/12)
- Pepsin and papain have different actions on the antibody molecule (2010)
- G-proteins act as signal transducers (2011)
- Intracellular processing of collagen .(2014)
- Collagen has a very firm structure. (2014)

MENTION

- Two differences between A&Z forms of DNA. (98)
- Two amino acids: one has non-polar aromatic side chain, enter in structure of proteins also it contains sulfur. (98)
- Four functions of membrane proteins. (September 2009)
- Four basic amino acids. (September 2009)
- Four simple proteins. (September 2009)
- 5 essential amino acids: one branched, one sulfur containing, one hetero cyclic, one hydroxyl amino acid, the last is basic (97)
- Two essential amino acids: one has sulfur and one branched(99)
- Two scleroproteins(97)
- Three protein precipitating agents. (97)
- Two essential amino acids: on heterocyclic and other branched(99)
- Two weak bonds involved in maintain the tertiary structure of protein molecule. (99)
- Two minor bases that enter the structure of nucleic acids; one purine & other pyrimidine. (99)
- Two minor bases: one purine & one pyrimidine present in tRNA. (2000)
- Two free nucleotides of biological importance: one is second messenger for glucagon & other for ANF. (99)
- Two haemoproteins: One enzyme present in animals & other is pigment present in muscles (99)
- Two *immunoglobulins: one can cross the placenta & the other can mediate hypersensitivity* & anaphylaxis.
- A tripeptide which acts as a hydrogen carrier. (99)
- Active pancreatic peptide having hyperglycemic & lipolytic effect. (99)
- Essential basic amine acids, for adult humans. (99)
- Unsaturated amino acid containing sulfur. (99)
- A free nucleoside that acts as a methyl donor. (99)
- Two bases: one purine and other pyrimidine, whose methylation in DNA may lead to changes that could help DNA condensation. (99)
- Two DNA helical forms: one is the broadcast form and one is left handed.(2000)

- Two neutral sulfur containing amino acids and two basic amino acids. (2012)
- Two sulfur containing amino acid.(one polar and one non polar).(2002)
- Two basic amino acid(one aliphatic and one heterocyclic).(2002/2003)
- Two metalloproteins(one containing Cu & Zu and one containing Cu & Fe).(2002/2003)
- Two Non-collagenous bone specific proteins.(2002)
- Two branched-chain amino acids and two acidic amino acids (2007)
- Four functions of plasma membrane proteins (2007)
- Two aromatic, two acidic amino acids and two imino acids. (August 2008)
- Three GAGs containing uronic acid and mention one importance for each. (August 2008)
- Two sulfur containing amino acid. (2014)
- Two non heme iron containing protein. (2014)
- Four effects of denaturation on proteins (2014)

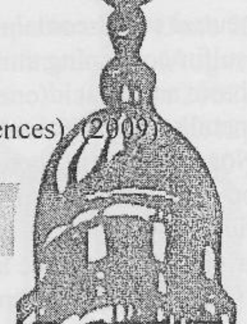
قال عمر رضي الله عنه : إنكم لا تنصرون على عدوكم بكثير عدة ولا عتاد , ولكن تنصرون على عدوكم بطاعتكم لربكم ومعصيتهم له , فإن تساويتم في المعصية غلبوكم بقوة العتاد)

Give an account

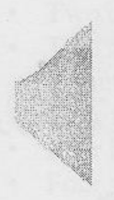
- Microsatellite and minisatellite polymorphism.(2005)
- Functions and importance of proteoglycans (2006)
- hemoglobinopathies. (2006)
- Fibronectin and integrin receptors. (2005)
- Types of α-thalassemias. (September 2009)
- Isoenzymes; Meaning and clinical significance. (2011) Characters - examples (2012)
- Both adult hemoglobin and myoglobin bind to oxygen ; however they show differences , describe : Difference(s) in structure , differences in function (mention 3 functions of hemoglobin and one for myoglobin) and Explain the effect of 2,3-bisphosphoglycerate of oxygen from hemoglobin at the tissues (2010)
- The relationship between the properties of phospholipids and their orientation in the cell membranes, what are the bonds stabilizing them in the membrane? (2011)
- Competitive and allosteric inhibitors (2011)
- Enzymatic digestion of immunoglobulins (September 2009)

COMPARE BETWEEN 2-3 DIFFERENCES

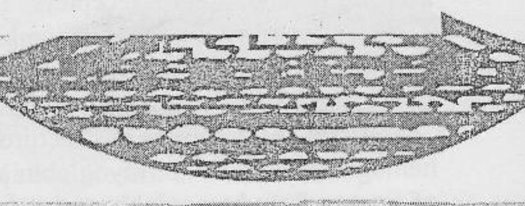
- Aromatic & heterocyclic amino acids. (95)
- Alpha, Beta chains of globin part of hemoglobin. (98/99)
- Immunoglobulin A, immunoglobulin M. (94)
- metalochromoproteins, non-metalochromoprotein. (94)
- Albumin & globins(97)
- Fetal & adult Hb. (98/99)
- A&Z forms of DNA. (98/99)



- mRNA & tRNA. (99)
- DNA – RNA. (99)
- primary & secondary immune responses. (99)
- Structure of hemoglobin and myoglobin (four differences) (2009)
- IgG and IgM (September 2009)
- Fibrous protein and globular protein. (2014)
- Adult and fetal hemoglobin. (2014)
- Hemoglobin S and Hemoglobin M(2014)
- Proteoglycans and glycoprotein (20140



قرب الرحيل إلى ديار الآخرة
فاجعل إلهي خير عمري آخره
فلئن رحمت فأنت أكرم راحم
وبحار جودك يا إلهي زاخره
انس مبيتي في القبور ووحدتي
وارحم عظامي حين تبقى ناخره
فأنا المسكين الذي أيامه
ولت بأوزار غدت متواترة
وتولّه باللطف عند مآله
يا مالك الدنيا ورب الآخرة



COMMENT ON:

- Structure of protein molecule. (90)
- Amino acid sequence of collagen. (98)
- Hemoglobin. (98)
- tRNA. (92/97/98)
- Immunoglobulins(92)
- Collagen(98)
- Denaturation(97)
- phospholipids(2001)
- Classification of amino acids according to polarity of R groups; give the formula of one amino acid in each group. (2001)
- Sickle-cell disease. (2001)
- Synthetic purine and pyrimidine analogs. (2001)
- Base pairing rule in DNA. (2001)



MENTION ONE FUNCTION OF:

- Histone(98)

- cGMP(98)
- kDHU arm in tRNA(98)
- The pseudouridine (y) arm in tRNA(99)

DIAGRAMATICALLY SHOW

- tRNA(99/2000)
- Electrophoretic pattern of normal serum proteins(99)
- Pentamer shape of IgM. (99)
- Expression of the alpha & Beta globulin before and after birth.
- The structure of tRNA(2000)
- Relation between heme & apomyoglobulin; discuss the importance of this relation to the binding of oxygen and carbon monoxide. (2001)
- The different interaction that stabilize the tertiary structure. (2002)
- The different forms of protein supersecondary structure. (2003)
- Structure of ABO blood group antigens.(2003)
- Organization of the globin gene families (2004)
- Role of G-proteins as signal transducers (2004)
- Synthesis of tropocollagen (2004)
- ABO blood group antigen (mention the differences between different groups) (2005)
- Structure of aggrecan monomer and polymer (2006)
- Role played by PIP2 as mediator of hormone actions (2006)
- Gene recombination and synthesis of IgG light chain (2005)

قال ابن القيم

نتائج المعصية: (قلة التوفيق – وفساد الرأي – وخفاء الحق – وفساد القلب – وخمول الذكر – وإضاعة الوقت – ونفرة الخلق – ووحشة بين العبد وربه – ومنع إجابة الدعاء – وقسة القلب – ومحق البركة فى الرزق والعمر – وحرمان العلم – ولبس الذل – وضيق الصدر – وطول الهم والحزن – وضنك المعيشة)

WHAT ARE THE HYDROLYSIS PRODUCTS OF:

- Glutathione. (2001/2002/2003)
- Insulin. (2001)
- Keratan sulfate. (2003)
- Keratin. (2003)
- sphinogomyelin. (August 2008)
- N-acetyl neuraminic acid. (August 2008)
- Glutathione. (August 2008)
- Inosinic acid. (August 2008)

GIVE ONE EXAMPLE DEMONSTRATING:

- Amphoteric properties of amino acids & proteins forming zwitterions. (99)
- transamination reactions(99)

DNA

Complete

- ……………is the tumor marker used for diagnosis of cancer colon, while ……….is used for diagnosis of liver cancer. (2009)
- ……………. Is the tumor marker that increases in cases of cancer colon, while …… increase cancer colon. (September 2009)

Diagrammatically illustrate

- Role played by p53 in case of moderate and extensive DNA damage (2004)
- Replication of telomere end of the lagging strand. (2004)
- Construction of gene libraries (2004)
- Role of cAMP as second messenger. (2005)
- Mechanism of apoptosis. (2005)
- Formation of 60S initiation complex during protein synthesis.(2005)
- Prokaryotic RNA synthesis (2005)
- Structure of tRNA (2006)
- Phases and regulators of cell cycle.(2006)
- Lac operon model of E-coli (2006)
- DNA replication fork in prokaryotes. (August 2008)
- Transfer RNA (tRNA). (August 2008)
- Structure of tRNA. (2009)
- Control of cell cycle. (2009)
- Structure of t-RNA (September 2009)
- Post transcriptional processing of mRNA (September 2009)
- 3-Prokaryotic replication (September 2009)
- Organization of Globin Genes. (2012)

Give an account

- point mutation (2004)
- Mitochondrial DNA (2004/2011)
- Cell cycle restriction point and check points (2004)
- Degeneracy of genetic codons and wobble theory. (2005)
- DNA supercoiling (2005)
- The main steps of DNA repair (September 2009)
- Levels of supercoiling of DNA chromatid (September 2009)
- PCR: (Definition, steps and importance (June 2012)) (Steps, requirements and applications. (2010))
- Types and functions of RNA polymerases in prokaryotes and eukaryotes (2010)
- Mechanism of synthesis of mRNA in eukaryotes (2010)

- Post-Transcriptional modifications for mRNA and the importance of each modification (2010)
- Control of cell cycle : Including check points (2010)
- Apoptosis (Definition , different mechanisms and Importance) (2010)
- Role of protein regulators in the cell cycle (2011)
- Steps of southern blotting technique (2011)
- RFLP; definition , causes and clinical importance (2011)
- Polymerase chain reaction. PCR (2014)
- Post transcriptional modification of messenger RNA. (2014)
- The characteristics of genetic code. (five are required) (2014)
- Lactose Operon (2014)
- DNA secondary structure (2014)
- DNA primary structure(2014)

Enumerate:

- Two cyclic nucleotides and two free-nucleotide coenzymes (2007)
- Three types of DNA polymerases used for DNA replication in eukaryotes and mention the role of each. (August 2008)
- Three examples of post-transcriptional processing of RNA and mention the importance of each. (August 2008)
- Three examples of tumor marker and mention the importance of each (August 2008)
- Four mechanisms for conversion proto-oncogenes into oncogenes.(2009/2012)
- Four causes of gene mutations. (2009)
- Four post translational covalent alterations of proteins (processing) (2009/2012)
- Two types of post translation covalent modification(2014)
- Two adenine containing nucleotides: one which acts as a second hormone messenger and one which act as a sulfate donor. (2014)

Give reasons

- The polypeptide chain is synthesized beginning from its N-terminus. (2007)

Answer two of the following:

- How DNA replication is initiated in prokaryotes? (5 marks) How proofreading is achieved (2 ½ marks) (2007)
- what are telomeres? (1/2mark) Why are they shortened after many cell cycles in human? (3marks) Describe how the problem of shortening is solved?(4marks) (2007)

- Describe the mechanism of mismatch and nucleotide excision repair in eukaryotes. (5 marks) Describe how the problem of shortening is solved? (4 marks). (2007)

What is meant by

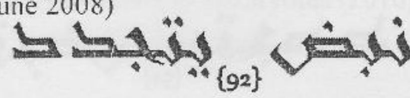
- cDNA (June 2008)
- DNA-dependent RNA polymerase (June 2008)
- Reverse transcriptase (June 2008)
- Promotor (June 2008)
- Proto-oncogene (June 2008, September 2009)
- Telomerase (August 2008)
- Promoter. (August 2008)
- Cloning (August 2008)
- Synonym codon. (2013)
- Pribnow or TATA box. (2013)
- Zymogens. (2013)
- Plasmid. (2012/13)
- Isoelectric point (2013)
- Cell cycle. (September 2009)
- Caspases. (September 2009)
- Rb tumor suppressor gene. (September 2009)

Compare and contrast (2013)

- Adult hemoglobin and fetal hemoglobin.
- Immunoglobin G and M.
- Prokaryotic and eukaryotic enzymes of replication.
- Amylose and amylopectin.

Describe five of the following processes:

- Cis-acting regulatory mechanisms of gene expression. (June 2008)
- Mechanisms of gene remodeling in eukaryotes. (June 2008)
- Apoptosis secondary to extracellular factors. (June 2008)
- Post-transcriptional intron excision and splicing of give a disease condition related to the process. (June 2008)
- Mismatch repair Give a disease condition due to failure of this process. (June 2008)
- Mis-sense mutation of B globin gene. Describe pre-natal laboratory diagnosis technique for this condition. (June 2008)



- Remodeling of chromatin gene in eukaryotes. (August 2008)
- Types of environmentally induced DNA errors (mutations). (August 2008)

Explain the biochemical basis

- protection of the 3'- and 5' terminals of mRNA in eukaryotes. (2007)
- DNA damage may lead to apoptosis. (2007)
- Chelation (or binding) of iron and/or copper prevents reactive oxygen species (ROS) generation. Illustrate two reaction in which both elements play role in ROS formation (2007)
- For protein synthesis, 20 amino acids are utilized. They are capable to charge about 50 tRNA species. A charged tRNA may recognize more than one codon during translation process. (2007)
- Tumor markers are used to monitor cancer except if cancer is very sensitive to chemotherapy (2007)
- Explain how tumor markers are used for diagnosis, follow-up and screening of tumors. Illustrate your answer with examples. (June 2008)
- Puromycin inhibits protein translation. (August 2008)
- p53 is called the molecular policeman. (2011/12/13)
- Membrane fluidity is dependent on several factors. (2013)
- Collagen has a very firm structure. (2013)
- Changes in pH can affect the rate of enzyme-catalyzed reactions. (2013)
- One cannot predict the sequence of nucleotides in gene knowing amino acid sequence in the protein coded the gene. (2010/11/12/13)
- Selenium has antioxidant effect (2012)
- Not all types of gene mutation lead to a disease (2012)
- synthesis of the antiparallel strands of DNA simultaneously through DNA polymerase can work in 5-3 direction only (2010/11)
- Importance of " Free Dinucleotides " (2010)
- The Meaning of RFLP and an example of its use (2010)
- O&P factors have different role in prokaryotic RNA synthesis (2010)
- The role of DNA dependent RNA polymerase and RNA dependent DNA polymerase in replication (2010/11)
- Conversion of Proto-oncogenes into oncogenes (2011)
- Name and importance of a free nucleoside and a free nucleotide containing pantothenic acid (2011
- Cause and manifestations of xeroderma pigmentosum (2011)
- Sickle cell anemia is a genetic disorder caused by point mutation. (2014)
- The importance of telomerase enzyme in replication(2014)
- The mitochondrial pathway of apoptosis. (2014)
- The role of sigma subunit in initiation of transcription. (2014)

- G-protein act as signal transducers.(2014)
- RNA editing changes mRNA after transcription.(2014)
- Base substitution may have no effect or may cause serious effect (2014)
- The sigma factor and the rho factor have different roles in prokaryotic RNA synthesis. (2014)

Define:

- Plasmid. (2009)
- Southern blotting. (2009)
- RNA splicing. (2009)
- Restriction endonucleosis. (2009)
- RNA splicing. (2014)
- Operon (2014)
- Synonym codon (2014)
- Plasmid (2014)
- Trimming (2014)
- Restriction enzymes (2014)

Mention the difference between:

- Eukaryotic and prokaryotic replication (four differences). (2009)
- DNA and RNA (four differences). (2009)
- DNA and RNA. (September 2009)
- The effect of missense and nonsense mutation(2014)
- The importance of capping and splicing of mRNA (2014)

What are the hydrolytic products

1-SAM. (September 2009)
2-Inosinic acid. (September 2009)
3-ATP (September 2009)

PHYSICOCHEMICAL PRINCIPLES

DEFINE

- Dialysis (92)
- I.E.P. (94)
- Oncotic pressure(94)
- Osmolarity(95)
- Surface tension(94/99)
- Acidosis(99)

- Elution(99)
- Synapses(99)
- Electrophoresis(97/99)
- Indicator. Mention its applications(95)
- Adsorption(99)
- Molal solution. Explain how you can prepare such a solution.(2001)
- Acidosis. Give 3 causes metabolic acidosis and one cause for respiratory acidosis.(2001)
- Buffers (June 2008)
- Isoelectric point (I.E.P) (2009)
- Buffers (2014)
- Vector (2014)

COMPARE

- True & titratable acidity(94)
- viscosity & hydrotrophy(95)
- emulsoids & suspensoids(94/98)(2014)
- Mechanism of compensation for metabolic and respiratory acidosis (2014)

MENTION

- 2 conditions or diseases associated with metabolic acidosis. (98) (4 conditions - 2012)
- 2 non-protein buffers present in plasma. (98)
- One function of absorption(99)
- State Henderson hasselbakh equation. Mention its importance. Show how it can be derived from the equation of dissociation of weak acids. (92)
- Calculate the pH of a solution in which the p[H+] is 7.6(92)
- Calculate the pH of a solution in which p[OH-] is 10(2001)
- IF the pKa of an acid is 4.8, how much of this acid is dissociated at pH 5.8? (2001)
- State the physiological significance of osmotic pressure. (94)
- Four pyrimidine bases found in nucleic acids (September 2009)

EXPLAIN

- The solvent properties of water. (2002)
- Kw = 10-4.(2003)
- NaCl is soluble in water.(2003)
- The cyclic forms of aldohexoses have 32 isomers.(2003)
- Mucic acid is optically inactive.(2003)
- Chronic lung disease may be complicated with respiratory acidosis but chronic renal failure is complicated with metabolic acidosis (2007)
- Albumin infusion is preferable to saline for treatment of edema. (2007)

Enumerate: (2013)

- 4 Functions of phospholipids.

- 4 cases of gene mutations.
- 4 adenine containing nucleotides.
- 4 characteristics of the genetic code.
- 4 effects of denaturation on proteins.

Give an account

- Solvent properties of water (2005)
- Hydrophobic interaction and Van Der Waals forces (2006)
- Lactose Operon in the presence of lactose and absence of glucose.(2013)
- Mismatch repair.(2013)
- Tree types of post-transcriptional modifications of mRNA. (2013)
- DNA secondary structure.(2013)

What is meant by buffers? & Describe their mode of action. Illustrate your answer with an example. (JUNE 2008)

FINAL YEAR EX...

JUNE 2000

All questions are to be answered. Formulae are written only when asked.

mention:

- Two coenzymes: one carry kettle group and one carry the amino group.
- Two enzymes which are activated by phosphorylation.
- Two minor bases: one purine and one pyrimidine present in tRNA.
- Two DNA helical forms: one is broadest form and one is left handed.
- Two hydrogen carriers: A tripeptide and a mononucleotide.

In full detail give an example of a reaction catalyzed by:

- Monooxygenase
- ligase
- ammonia lyase
- transamidase
- epimerase

define:

- A codon
- Enzyme compartmentalization
- Michaelis constant
- Enzyme stabilization

- Optimum temperature
- Zymogen
- Co-operative binding
- Constitutive enzyme
- Base pairing
- The 2 strands of DNA run antiparallel

Diagrammatically show:

- Fisher's template theory for mechanism of enzyme action.
- Effect of pH on enzyme action.

JUNE 2001

All questions to be attempted

give an account on:

- Families of the unsaturated fatty acids.
- Lecithin, using its formula show how it may be hydrolyzed by enzymes.
- Estrogens
- Phosphoproteins
- Classification of amino acids according to polarity of R groups, give the formula of one amino acid in each group.
- Sickle-cell disease.
- Synthetic purine and pyrimidine analogs.

Explain the following:

- HBF has a high affinity for oxygen the HBA.
- IgE mediates allergic reactions.
- Vitamin E deficiency predisposes to atherosclerosis.
- Thiamine deficiency leads to peripheral neuritis.
- Administration of ionized Ca++ may cause convulsions.
- Cyanide is very toxic to tissues.
- Methotrexate inhibits multiplication of cells.

Write short notes on:

- Base pairing rule in DNA.
- Zymogens
- Dioxygenases
- Causes of vitamin D deficiency
- Pellagra
- Group specificity of enzyme.

Draw a labeled diagram illustrating:

- The structure of palmitoleic acid, showing the different ways of numbering the carbon atoms and the position of double bonds.
- Expression of alpha & Beta globulin genes before and after birth.
- The structure of tRNA
- The vitamin K cycle
- The temporal changes in serum enzymes levels after an attack of acute myocardial infarction.
- Relation between heme and apomyoglobulin; discuss the importance of this relation to the binding of oxygen and carbon monoxide.
- The use of the Linewaver-Burk plot to differentiate between competitive and non competitive enzyme inhibitors.
- The role of folic acid and cobalamin in the metabolism of the non-carbon unit (formulae not required)

MAY 2002

Illustrating by diagrams all of the following:

- Structure of an immunoglobulin monomer.
- G protein as signal transducers.

Explain in details the primary and secondary structures of B-forms of DNA (illustrate your answers with diagrams and chemical formula of nitrogenous bases are required).

Give an account on each of each of the following:

- Manifestation of scurvy.
- CPK isozyme.
- HbS
- Allosteric modifiers
- Importance of cell membrane proteins.
- Importance of folate antagonists.
- Wilson disease.
- Peptidase
- Metallothioneins
- Causes of rickets

•

JUNE 2003

diagrammatically illustrate:

- Detailed structure of an immunoglobulins molecule and action of papain.
- Role of cAMP as a second messenger.
- Mechanism of apoptosis.
- Synthesis of cDNA.

JUNE 2004

Time allowed: three hours including MCQ exam

Diagrammatically illustrate:

- Organization of the globin gene families.
- Role played by p53 in case of moderate and extensive DNA damage.
- Role of G-proteins as signal transducers.
- Replication of telomere end of the lagging strand.
- Construction of gene libraries.
- Synthesis of tropocollagen.

Give an account of each of the following:

- point mutation
- Mitochondrial DNA
- Cell membrane asymmetry and fluidity.
- Cell cycle restriction point and check points.
- Six examples for the importance and functions of phospholipids.

N.B. In all above items diagrams are not required.

JUNE 2005

Time allowed: three hours including MCQ exam

Chemical formulae are not required

Diagrammatically illustrate:

- Gene recombination and synthesis of IgG light chain
- Role of cAMP as second messenger.
- Mechanism of apoptosis.
- ABO blood group antigen (mention the differences between different groups)
- Formation of 60S initiation complex during protein synthesis.
- Prokaryotic RNA synthesis.

Give an account of each of the following (diagrams and chemical formulae are not required).

- Sugar alcohols (mention three examples).
- Importance and functions of phospholipids(six examples)
- Fibronectin and integrin receptors.
- Degeneracy of genetic codons and wobble theory.
- DNA supercoiling.
- Microsatellite and minisatellite polymorphism.
- Solvent properties of water.

خل أمير المؤمنين عمر بن عبدالعزيز المسجد الاموى , فوطا على قدم احد المصلين من غير قصد فقال الرجل له ,وهو
لا يعرف عمر بن عبدالعزيز امجنون انت ؟!! فقال عمر : لا فهم الحراس بضربه فمنعهم عمر وقال سألنى أمجنون انت
فقلت: لا

JUNE 2006

Time allowed: three hours including MCQ exam
All questions must be attempted
Chemical formulae are not required

Diagrammatically illustrate:

- Structure of tRNA.
- Structure of aggrecan monomer and polymer.
- Role played by PIP2 as mediator of hormone actions.
- Phases and regulators of cell cycle.
- Lac operon model of E-coli.

Explain an account of each of the following (diagrams are not required)

- Functions and importance of proteoglycans.
- hemoglobinopathies.
- Hydrophobic interaction and Van Der Waals forces.
- Cell membrane fluidity and asymmetry.

JUNE2007

Answer the following questions:

Enumerate four of the following:

- Four glucose monosaccharide derivatives.
- Two sphingolipids and two eicosanoids.
- Two branched-chain amino acids and two acidic amino acids.
- Two cyclic nucleotides and two free-nucleotide coenzymes
- Four functions of plasma membrane proteins.

Answer two of the following:

- How DNA replication is initiated in prokaryotes? (5 marks) How proofreading is achieved (2 ½ marks)
- what are telomeres? (1/2mark) Why are they shortened after many cell cycles in human? (3marks) Describe how the problem of shortening is solved?(4marks)
- Describe the mechanism of mismatch and nucleotide excision repair in eukaryotes. (5 ½ marks) Describe how the problem of shortening is solved? (4marks).

Explain the biochemical basis or mechanism of five of the following:

- protection of the 3'- and 5' terminals of mRNA in eukaryotes.
- DNA damage may lead to apoptosis.
- Chelation (or binding) of iron and/or copper prevents reactive oxygen species (ROS) generation. Illustrate two reactions in which both elements play role in ROS formation.
- Chronic lung disease may be complicated with respiratory acidosis but chronic renal failure is complicated with metabolic acidosis.
- For protein synthesis, 20 amino acids are utilized. They are capable to charge about 50 tRNA species. A charged tRNA may recognize more than one codon during translation process.
- Tumor markers are used to monitor cancer except if cancer is very sensitive to chemotherapy.

Give reasons for four of the following statements:

- The dipeptide aspartate-serine is presented on the surface of the globular protein, whereas the dipeptide leucine-phenylalanine is oriented in its core.
- Albumin infusion is preferable to saline for treatment of edema.
- Proteins act as buffers.
- The polypeptide chain is synthesized beginning from its N-terminus.
- Pepsin-splitting immunoglobulins make precipitate with antigen but papain-splitting products cannot.
- Lung surfactant deficiency in premature neonates leads to respiratory distress syndrome.

June 2008

Answer the following questions:

1. What is meant by (Answer four of the following): (8 marks)
   - cDNA
   - DNA-dependent RNA polymerase
   - Reverse transcriptase
   - Promotor

- Proto-oncogene

2. Describe five of the following processes: (15 marks)
   - Cis-acting regulatory mechanisms of gene expression.
   - Mechanisms of gene remodeling in eukaryotes.
   - Apoptosis secondary to extracellular factors.
   - Post-transcriptional intron excision and splicing of give a disease condition related to the process.
   - Mismatch repair Give a disease condition due to failure of this process.
   - Mis-sense mutation of B globin gene. Describe pre-natal laboratory diagnosis technique for this condition.
3. Explain how tumor markers are used for diagnosis, follow-up and screening of tumors. Illustrate your answer with examples. (6 marks)
4. Enumerate three compounds containing each of the following
   - Choline
   - Glucuronic acid
   - sphingosine

   Give the structure of one of three compounds. (9 marks)
5. Describe the steps of synthesis and maturation of collagen. (5 marks)
6. Explain hydroxylation of proline and lysine rescues, and its importance. (2 marks)
7. What is meant by buffers? (0.5 mark) & Describe their mode of action. Illustrate your answer with an example. (1.5 marks)
8. What is the class of each monosaccharide of the following? Give its reduced product(s), (3 marks)
   - Fructose
   - Ribose
   - Glyceraldehyde

August 2008

Answer the following questions:

I. enumerate only four of the following:

1. Three types of DNA polymerases used for DNA replication in eukaryotes and mention the role of each.
2. Three examples of post-transcriptional processing of RNA and mention the importance of each.
3. Two aromatic, two acidic amino acids and two imino acids.
4. Three examples of tumor marker and mention the importance of each.
5. Three GAGs containing uronic acid and mention one importance for each.

II. What are the hydrolytic products of only three of the following: (6 marks)
1. sphinogomyelin. 2. N-acetyl neuraminic acid
3. Glutathione 4. Inosinic acid (12 marks)

III. Explain why? Answer three only: (6marks)
- Lactose is a reducing while sucrose is a non reducing disaccharide
2. Puromycin inhibits protein translation.
3. Exposure of the cells to stress affects protein synthesis.
4. Globin part of hemoglobin is essential for hemoglobin function

IV. Diagrammatically illustrate the detailed structures and names of only two of the following:
- Transfer RNA (tRNA).
- Immunoglobulins.
- DNA replication fork in prokaryotes

V. What is meant by only 4 of the following: (8 marks)
1. Mutation 2. Telomerase
3. Promoter. 4. Cloning 5. Rancidity

VI. Describe only two of the following: (8 marks)
- Remodeling of chromatin gene in eukaryotes.
- Types of environmentally induced DNA errors (mutations).
- . Lipids of cell membrane and their functions.

May 2009

I- Complete

1-…………….is the alcohol of glucose, while…..is the alcohol of galactose
2-……………is the tumor marker used for diagnosis of cancer colon; while………is used for diagnosis of liver cancer.
3-sickle cell anemia is caused by replacement of the amino acid…….at position6 of β-chain of hemoglobin by the amino acids……………
4-………….is acyclic eicosanoid, while…………..is cyclic.
5-structural proteins of extracellular matrix include mainly………

قال ﷺ : (اتق الله حيثما كنت واتبع السيئة الحسنة تمحها وخالط الناس بخلق حسن)
قال ﷺ : (من كان يؤمن بالله اليوم الاخر فليحسن الى جاره) صحيح

II- Define:
1- Primary structure of protein.
2- Plasmid.
3- Southern blotting.
4- RNA splicing.

5- Restriction endonucleosis.
6- Isoelectric point (I.E.P)

III- Enumerate.

1- Four mechanisms for conversion proto-oncogenes into oncogenes.
2- Four sphingosine containing compounds.
3- Four causes of gene mutations.
4- Four post translational covalent alterations of proteins (processing).
5- Four causes of cell membrane asymmetry.

IV-Diagrammatically illustrate:

- Control of cell cycle.
- Structure of tRNA.
- Lactose operon (Lac operon) of E.coli.

V- Mention the difference between:

1-Eukaryotic and prokaryotic replication (four differences).
2-DNA and RNA (four differences).
3-Structure of hemoglobin and myoglobin (four differences).

August 2009

I . Complete

- …………….. is a sulphate free mucopolysaccharides while. ……………Is a homopolysaccharide
- ……………... is an O linked disease glycoprotein while, ……… Is a phospho-protein
- Hemoglobin C disease is caused by replacement of amino acid ……………. at position 6 of the β-chain of hemoglobin by amino acid ……………
- ……………... is a branched chain essential amino acid while, ………… is an aromatic non essential amino acid.
- ……………. Is the tumor marker that increases in cases of cancer colon, while ……… increase cancer colon.

II. Define

- Tertiary structure of protein.
- Proto-oncogenes.
- Cell cycle.
- Caspases.
- Rb tumor suppressor gene.
- Optical activity.

III. Enumerate

- Four basic amino acids.
- Four glycerol-containing phospholipids.
- Four simple proteins.
- Four pyrimidine bases found in nucleic acids.

- Four functions of membrane proteins.

IV. Diagrammatically illustrate
- Structure of t-RNA
- Post transcriptional processing of mRNA
- Prokaryotic replication

V . Mention the differences between
- Amylopectin and glycogen
- DNA and RNA.
- IgG and IgM

VI. What are the hydrolytic products?
- SAM.
- Inosinic acid.
- Phosphatidic acid.
- Ceramide.
- ATP

VII. Give an account
- The main steps of DNA repair.
- Types of α-thalassemias
- Levels of supercoiling of DNA chromatid
- Enzymatic digestion of immunoglobulins

June 2010

- What are the types and functions of RNA polymerases in prokaryotes and in eukaryotes ? Describe the mechanism of synthesis of mRNA in eukaryotes. Describe the post-transcriptional modifications for mRNA and the importance of each modification.
- Give an account on :
  - Control of the cell cycle : including the check points.
  - Apoptosis (definition, different mechanisms and importance).
  - Polymerase chain reaction (PCR): Steps, requirements and applications.
  - Both adult hemoglobin and myoglobin bind to oxygen; however they show difference(s) in structure.
- Describe:
  - Difference(s) in structure.
  - Differences in function (mention 3 functions for hemoglobin and one for myoglobin).
  - Explain the effect of 2,3-bisphosphglycerate on oxygen from hemoglobin at the tissues.
- On biochemical basis, explain:
  - One cannot predict the sequence of nucleotides in a gene knowing the amino acid sequence in the protein coded by this gene (give three reasons).
  - Vitamin C deficiency leads to defective collagen synthesis.

- Pepsin and papain have different actions on antibody molecule.
- Synthesis of antiparallel strands of DNA simultaneously though DNA polymerase can work in 5-3 direction only.
- The importance of a named Free dinucleotide
- the meaning of RFLP and an example of its use.
- Exposure to low oxygen concentration precipitates a hemolytic crisis in patient with sickle cell anemia.
- O&P factors have different roles in prokaryotic RNA synthesis
- The importance of cholesterol in the cell membrane
- the role of DNA dependent RNA polymerase and RNA dependent DNA polymerase in replication

June 2010

- Describe the post transcriptional processing of mRNA and its importance
- Give an account on the following:
  - The relationship between the properties of phospholipids and their orientation in cell membranes. What are bonds stabilizing them in the membrane?
  - Role of protein regulators in the cell cycle.
  - Steps of southern blotting technique.
  - Importance of mitochondrial DNA.
  - Meaning and clinical importance of named isozyme.
  - Competitive and allosteric inhibitors.
  - RFLP: definition , causes and clinical importance.
- On biochemical basis explain the following:
  - G-proteins act as signal transducers.
  - Conversion of proto-oncogene to oncogene.
  - p53 is the guardian of the genome.
  - The two antiparallel strands of DNA are synthesized simultaneously though DNA polymerase can work in the 5' to 3' direction only. State the differences in the synthesis of the new strands.
  - The action of DNA dependent RNA polymerase and RNA dependent DNA polymerase in replication.
  - Name and importance of free nucleoside and free nucleotide containing pantothenic acid.
  - Cause and manifestations of xerodema pigmentosum
  - Organisms living in cold environment have higher proportion unsaturated fatty acids in their cell membranes.
  - One cannot predict the sequence of nucleotides in a gene knowing amino acid sequence in the protein coded by this gene.



وفى الختام نسأل الله عز وجل أن نكون قد وفقنا فى
مساعدتكم، وأن يجعلنا دائمًا فى خدمة اخواننا واخواتنا.
لن كان من توفيق فمن الله وان كان من نقص فمنا ومن
الشيطان..
ورضا الله من وراء القصد .

Salah Eldeen Club

ادع الينا الدنيا فقد أبرمنا أمرا.... واجمع علينا الناس نتلوا عليهم من لدنا ذكرا

سنطب المريض بدوائنا...وننفخ فى الجبان من روحنا

صمت أذن الدنيا لن لم تسمع لنا

الله غايتنا .. الرسول زعيمنا .. القرآن دستورنا .. والجهاد سبيلنا .. والموت فى سبيل الله اسمى أمانينا

أسرة صلاح الدين ... نبض يتجدد

أسرة صلاح الدين

KASR ALAINY

CAIRO UNIVERSITY - FACULTY OF MEDICINE

نبض يتجدد

Salah
Eldeen

اسرة صلاح لدين

Salah Eldeen Club



أسرة صلاح الدين

